PHASE II STORM WATER MANAGEMENT PROGRAM ANNUAL REPORT

for January 1, 2006 - December 31, 2006

Permit No. MI0057364

Prepared by:

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Lansing, Michigan

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Acronyms

The following acronym list is provided as a resource for those reading this report.

BMP – Best Management Practice
BOH IM – Bureau of Highway Instructional Memorandum
CSS – Context Sensitive Solutions
DIT – Department of Information Technology
IDEP – Illicit Discharge Elimination Program
MDEQ – Michigan Department of Environmental Quality
MDOT – Michigan Department of Transportation
MEA – Municipal Enforcing Agency
MEP – Maximum Extent Practicable
MPO – Metropolitan Planning Organization
MS4 – Municipal Separate Storm Sewer System
NPDES – National Pollutant Discharge Elimination System
PIPP – Pollution Incident Prevention Plan
SESC – Soil Erosion and Sedimentation Control
SWMP – Storm Water Management Plan
TMDL – Total Maximum Daily Load
TSC – Transportation Service Center
UA – Urbanized Area

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STATUS AT A GLANCE

Storm Water Management Plan Annual Report

IMPLEMENTATION TEAMS/TASKS 2006	Status	Schedule
MDOT Sponsored Education and Outreach		
1. Training attendance tracking	⊙	☼
2. Training review and updates	⊙	☼
3. Conference participation	●	☼
4. Article publication	●	☼
5. Annual progress report	●	☼
6. Storm water awareness survey	●	☼
7. Lansing Information Center	●	☼
8. General public education	●	☺
9. Public Web site administration	●	☼
Public Involvement & Participation		
1. Project early coordination process	●	☼
2. Total Maximum Daily Load (TMDL) review	●	☼
Illicit Discharge Elimination Program		
1. Illicit discharge reporting database	●	☼
2. Monitor illicit discharges and follow up	●	☼
3. Illicit discharge notification and reporting training	●	☼
4. Dry weather screening at priority outfalls	⊙	☺
5. Legal authority for illicit discharge removal	●	☼
6. Dry weather screening outfall mapping	⊙	☺
7. Statewide outfall mapping	●	☺
8. Tap-in/Discharge permits tracking	●	☼
Post Construction Storm Water Management		
1. Post-construction BMP maintenance guidelines	⊙	☼
2. Post-construction BMP field maintenance tracking (MARS)	⊙	🕘
3. Post-construction BMP selection, design, and maintenance procedures	⊙	🕘
4. Drainage Manual update	●	☼
5. Existing flow control structure review	⊙	🕘
Pollution Prevention & Good Housekeeping		
1. PIPP audits	●	☼
2. Maintenance training	●	☼
3. Contract agency coordination (salt storage, winter maintenance)	⊙	🕘
4. Pesticide Applicator Program and fertilizer training	●	☺
5. Adopt-a-Highway Program	●	☺
Soil Erosion & Sedimentation Control		
1. SESC Program	●	☼
2. SESC Program review	●	☼
3. Part 91 and Part 31 training	●	☼
4. Outfall labeling	●	☼

Status: Procedure/Program in Development = ⊙ Being Implemented = ●

Schedule: Ahead = ☺ On Schedule = ☼ Behind = 🕘

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Overview

Introduction

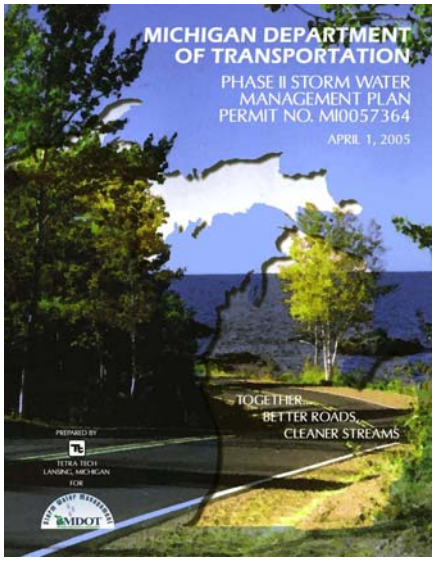
This Annual Report describes storm water pollution control activities implemented by MDOT over the past reporting period of January 1, 2006-December 31, 2006 to comply with reporting requirements described in the National Pollutant Discharge Elimination System (NPDES) Permit (No. MI0057364, hereinafter referred to as the Permit) issued by the Michigan Department of Environmental Quality (MDEQ). The Permit, which expires on April 1, 2009, is expected to be reissued in five year cycles thereafter.

The Permit directs MDOT to develop and implement a comprehensive Storm Water Management Program (SWMP) designed to reduce the discharge of pollutants from the MDOT drainage systems to the maximum extent practicable (MEP), protect the designated uses of the waters of the state, increase awareness of storm water as a potential source of pollutants, and satisfy the applicable state and federal water quality requirements.

Report Objectives

The objectives for this report are as follows:

- To inform MDOT Staff about SWMP activity accomplishments.
- To satisfy MDOT's annual reporting requirement of the Permit.
- To evaluate and assess the appropriateness and effectiveness of MDOT's SWMP.
- To present information about new programs, changes to current programs and procedures developed by MDOT.
- To document changes to MDOT's fiscal analysis and to summarize annual expenditures and budget information.



Report Organization

The annual report highlights actions MDOT completed or is working on to fulfill the Permit requirements during 2006 and also what activities it will focus on in 2007. The reported information is organized by the six implementation teams responsible for the completion of storm water-related activities. The activities of the teams closely follow the requirements of the six minimum measures of the Permit. The implementation teams include the following:

- MDOT-Sponsored Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Elimination Program (IDEP)
- Post Construction Storm Water Management
- Pollution Prevention/Good Housekeeping
- Soil Erosion and Sedimentation Control (SESC)

MS4 Committee

MDOT's Municipal Separate Storm Sewer System (MS4) Committee continues to meet on a quarterly basis to discuss progress of the program. Members of the MS4 Committee also serve as chairs of the implementation teams.

Program Assessment

Program assessment is primarily determined by the Storm Water Management Program's adherence to the activities and measurable goals committed to in the SWMP as well as regular evaluation of storm water-related procedures, training, and programs.

As MDOT's Storm Water Management Program undergoes development and implementation, care is taken to ensure that MDOT's commitments, as written in the SWMP, are fulfilled; however, as the program flourishes, it sometimes becomes evident that modifications need to be made to the original activity, the measurable goal, or both. For more detail regarding activities and schedules committed to in the SWMP, see Appendix A, *SWMP Activity Sheets*. Appendix A contains all of the activity sheets from Chapter 3, Plan Elements and Activities, of the SWMP. Each activity sheet denotes modifications to the activity's interim milestones and measurable goals and also indicates which interim milestones and measurable goals have been completed.

Overall, MDOT is on schedule for fulfilling their commitments and the intent of their commitments by the end of the 5-year permit cycle on April 1, 2009. MDOT's vision is to have its Storm Water Management Program be incorporated into the daily activities of the Department with the storm water-related procedures compiled into a

Storm Water Management Manual. Once the original measurable goals are completed, program assessment will be based on evaluation mechanisms built into each of the procedures, trainings, and programs.

Revised Fiscal Analysis

No revisions were made to the fiscal analysis for this reporting period.

Annual Budget

Table 1 provides a summary of MDOT's past annual expenditures and estimated expenditures for fiscal year 2007. The fiscal year is from October 1st through September 30th of each year. Finalized budget information is also provided for FY 2006. The FY 2006 estimated budget will be updated in the next Annual Report.

Table 1 Annual Storm Water Management Program Expenditure and Budget

Fiscal Year	Annual Expenditure
FY 1999	$142,111
FY 2000	$1,017,346
FY 2001	$764,142
FY 2002	$638,881
FY 2003	$508,123
FY 2004	$395,837
FY 2005	$372,372
FY 2006	$477,000
FY 2007*	$575,000

** Budgeted amount for FY 2007.*

MDOT-Sponsored Education and Outreach

Objective

To spread awareness of MDOT's Storm Water Management Program to MDOT staff, contractors, and the traveling public and to train MDOT staff and contractors on job-related expectations.

Training

The MDOT storm water training program for 2006 focused on MDOT's Illicit Discharge Elimination Program (IDEP). IDEP Coordinators were designated for each region and were charged with 1) taking illicit discharge complaints, 2) following up on complaints and any confirmed illicit discharges, 3) training applicable field staff, and 4) recording information related to the complaints. Training materials were developed including an updated IDEP training module for field staff and a comprehensive training binder for IDEP Coordinators. The IDEP Coordinators were trained by an outside consultant on their responsibilities and on the new IDEP Reporting Database on April 27, 2006. All region IDEP Coordinators were in attendance, among others (12 attendees).

In addition to the targeted IDEP training, several other trainings were held on soil erosion and sedimentation control, pesticide application, and permanent storm water best management practices. The following details these trainings.

- SESC Training
  - Concrete Pavers Association of Michigan
    September 14, 2006, Grand Rapids; October 4, 2006, Detroit; October 11, 2006, Lansing (112 attendees)
  - MITA Superconferences
    January 27, 2006, Metro; February 10, 2006, Grand Rapids; February 24, 2006, Lansing (114 attendees)
  - Michigan Local Technical Assistance Program (LTAP)
    September 14, 2006; October 4, 2006; October 11, 2006 (104 attendees)
- MDOT Pesticide/Certification Training
  April 25-26, 2006 (67 attendees)
- NHI Course # 142047 Water Quality Management of Highway Runoff
  December 6-7, 2006 (23 attendees)
- Izaac Walton League of America Highway Stormwater Management Webcast
  May 18, 2006; June 15, 2006; October 26, 2006; February 2, 2007
- Federal Highway Administration, Great Lakes Storm Water Workshop
  August 10, 2006 (2 attendees from MDOT)

Conference Presentations

In addition to the formal training sessions, MDOT spoke at several conferences internal to MDOT and at outside conferences regarding storm water-related topics. MDOT also provided storm water educational materials and applicable display boards as handouts and exhibits, respectively, at various conferences and public events. The following summarizes these opportunities: (For more information see Appendix B, *MDOT-Sponsored Education and Outreach*.)

Oral Presentations

- MDOT/American Council of Engineering Companies (ACEC) Partnering Conference
  February 2, 2006
- MDOT Construction Conference
  March 7-9, 2006
- MDOT Career Day
  April 27, 2006, May 2-3, 2006
- MDOT Design Conference
  June 27, 2006
- Michigan Association of County Drain Commissioners
  February 15-17, 2006

Display Exhibits & Handouts

- AWWA & MWEA Joint Expo
  February 6-7, 2006
- Michigan Stormwater-Floodplain Association Conference, February 13-14, 2006
- Michigan Association of County Drain Commissioners
  February 15-17, 2006; June 7, 2006; June 8, 2006; June 26, 2006; June 28, 2006
- Kalamazoo Home Expo
  March 8-11, 2006
- MDOT Shadow Day
  April 27, 2006

- MDOT Operation CARE
  April 26-29, 2006; July 1-4, 2006;
  September 1-4, 2006
- "Galesburg Days", Galesburg, Michigan
  Summer 2006
- "UP Fair", Upper Peninsula, Michigan
  Summer 2006
- Kalamazoo County Fair
  August 7-11, 2006
- MDOT Maintenance Conference
  August 22, 2006
- Texas Township, Kalamazoo Co. Fire
  Department Open House, October 1, 2006
- MDOT Real Estate Conference
  October 12-13, 2006
- Metropolitan Detroit Science Teachers Assoc.
  October 21, 2006
- Kalamazoo River Storm Water Management
  Plan Public Meeting, October 26, 2006
- Community Expo: Watersheds, Water Quality,
  Lakes, Rivers, Land Use Issues, Lawrence,
  Michigan, October 31, 2006
- Sodus Township, Michigan
  November 8, 2006
- MDOT Utilities Conference
  December 5-7, 2006

Storm Water Educational Materials

New storm water educational materials were developed in 2006 to increase awareness of MDOT's storm water program to MDOT staff, contractors, and the traveling public. As the targeted audiences become more aware of the program, it is MDOT's goal to transition that awareness to knowledge of expected participation in the storm water program, and then to behavior that supports the storm water program. This transition is expected to occur over many years.

The following materials were created in 2006 and were distributed at conferences, public events, through existing MDOT media such as the Monday Memo, and through existing industry newsletters. (For more details see Appendix B.)

- Soil Erosion and Sedimentation Control Pocket Guide, January 2006
- 'Dot the Drop' Soil Erosion and Pollution Prevention animation, February 2006
- Michigan Infrastructure and Transportation Association (MITA) Cross-Section publication, "MDOT's Storm Water Management Program Findings – Soil Erosion and Sedimentation Control", Spring 2006
- Illicit Discharge Elimination Program Display and Brochure, August 2006
- MITA Cross-Section publication, "MDOT's Storm Water Management Program – Illicit Discharge Elimination Program", Summer 2006
- LTAP, The Bridge publication, "MDOT's Maintenance Performance Guides Updated for Phase II Storm Water Permit Compliance", September 2006
- MITA Cross-Section publication, "MDOT's Storm Water Management Program – Pollution Prevention and Good Housekeeping on Construction Sites", Fall 2006

Other Agencies Borrowing MDOT Material

With many of the educational materials being posted on the MDOT Storm Water Public Web Page, MDOT has received several requests from other public agencies to use MDOT educational materials for their own reprinting and distribution. MDOT encourages usage of these materials and supplies the native graphic files when requested. The following is a list of agencies requesting to use MDOT materials:

- Watertown Township, Michigan
  Storm Water Tip Sheets
- Universal City, Texas
  Received all native graphic files
- Arizona Department of Transportation
  Storm Water Flyer for Kids and Storm Water Jeopardy-style Game
- Village of Pinckney, Michigan
  IDEP Brochure

MDOT Storm Water Public Web Page

http://www.michigan.gov/stormwatermgt

The MDOT Storm Water Public Web Page is part of MDOT's Public Web Site and is updated on a quarterly basis. The page is dedicated to Phase II storm water information and provides a means for MDOT staff, contractors, and the traveling public to view and download MDOT's storm water materials, including reports and educational materials, and to link to other storm water-related Web sites. New information downloaded to the Web page this year includes the following:

- 'Dot the Drop' Soil Erosion and Pollution Prevention animation, February 2006
- Interactive storm water Jeopardy-style game September 2006
- MDOT Outfall Location Maps December 2006

Documentation of the number of Web page visits and downloads is located in Appendix B.

MDOT Library

The MDOT Library is located in the Murray D. Van Wagoner Building in downtown Lansing. The library participates in interlibrary loaning to other state agencies, approved consultants, other governmental agencies, and universities. A separate storm water section is included in the library with materials that are catalogued and can be checked out. In 2006, the storm water materials were not checked out of the library and new materials were not added to this section.

Due to the tremendous amount of storm water materials available on the Web and employee tendency to search for up-to-date materials on the Web, it is believed that keeping the latest storm water material in the library is no longer of value to the storm water management program. In the future, usage of the library materials will not be recorded in the annual report.

Storm Water Management Awareness Survey

In 2005, a storm water management awareness survey was distributed throughout MDOT. The storm water awareness survey results were compiled in 2006 and a report was developed to establish baseline data regarding storm water management. The executive summary of the report is included in Appendix B.

The survey helped identify trends in perceptions, knowledge, actions, and learning modes pertinent to storm water management awareness. The results of the survey are helping to target specific job-related audiences for training using preferred methods of learning.

Focus for 2007

The education/outreach focus for 2007 is to continue to broaden the storm water training effort through conference discussions and training, specifically targeting roadway designers on the early coordination procedure and post-construction storm water best management practice design and maintenance considerations.

Upcoming education and training activities:

- MITA Superconferences
- MDOT/ACEC Partnering Conference
- MDOT Design Conference
- Construction Site Soil Erosion and Pollution Prevention Pocket Guide
- IDEP Tap-in/Discharge Permit Flyer
- IDEP Residential Illicit Discharge Flyer
- Maintenance Garage Training Video
- MDOT Watershed Boundary Map
- NHI Course # 142047 Water Quality Management of Highway Runoff for MDOT highway design staff
- Early Coordination Training for applicable staff at the Transportation Service Centers
- Training Evaluations and Follow-Up Tests
- Incorporating pollution prevention practices in existing environmental training

Measurable Goals

See Appendix A, Activities E-1, E-2, E-3, E-4, E-6, T-1, T-2, T-3, and T-4 to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Public Involvement and Participation

Objective

To coordinate early planning of MDOT projects with local watershed organizations (Context Sensitive Solutions) and the Michigan Department of Environmental Quality (MDEQ) on environmental aspects.

Early Coordination Procedure

Over the past two years, MDOT has been working with the Michigan Department of Environmental Quality (MDEQ) to formalize and expand on an existing practice which instructs MDOT Staff to consider storm water Best Management Practices (BMPs) early in the project planning process. Once the BMPs are recommended by MDOT Staff, they are submitted to the MDEQ for comment for selected projects. The Early Coordination Procedure was approved by the MDOT Environmental Committee in 2006 and is being implemented as of the 2007 Scoping process. Evaluation of the procedure will be conducted annually as written in the procedure by a workgroup of selected MDOT, MDEQ, and Michigan Department of Natural Resources (MDNR) Staff.

See Appendix C, *Public Involvement and Participation*, for a copy of the MDOT office memorandum and the procedure.

Early Coordination Database

The MDOT Bureau of Transportation Planning Environmental Section is working with the Department of Information Technology (DIT) to create a web-based platform to facilitate early coordination. Project information will be posted and the site will track how many projects were sent for review and how many concurrences or comments were received. As it could be two to four years before this database is functional, tracking in the interim will be conducted manually by the Aquatic Resource Specialist within the Bureau of Transportation Planning Environmental Section.

Projects Affecting Waterways with Total Maximum Daily Loads

Three projects were reviewed in 2006 for their affect on waterways with a promulgated Total Maximum Daily Load (TMDL). Two of these projects were reevaluations from 2005 and one was a review during preliminary scoping, which is completed at least five years prior to construction. In 2006, no construction projects affected TMDL waterways.

Watershed Group Meetings

To help facilitate project coordination between MDOT and local watershed and environmental groups, region staff attend local watershed/environmental group meetings when appropriate and when possible. In addition, the MDOT Storm Water Program Manager receives and reviews meetings minutes from 15 to 20 watershed groups to ensure proper MDOT coordination when possible. In 2006 the following meetings were attended:

- Kalamazoo River Mainstem 3 (4 meetings)
- Macatawa Area Coordinating Council and the Macatawa Watershed Project - Great Lakes Basin Grant to address soil erosion (3 meetings)
- Muskegon River Watershed Assembly (2 meetings)
- Portage River Watershed Management Plan Meetings (2 meetings)

Alliance of Rouge Communities Meetings

The Alliance of Rouge Communities (ARC) is a voluntary public watershed entity currently comprised of 39 municipal governments and two counties (i.e., Wayne, and Washtenaw). The ARC members represent public agencies with water management responsibilities whose jurisdictional boundaries are totally or in part located within the Rouge River watershed located in southeast Michigan. As a stakeholder in the Rouge River watershed, MDOT attends the biannual Full Alliance meetings to keep updated on watershed happenings and to ensure appropriate coordination of MDOT and ARC activities.

Focus for 2007

- To implement the early coordination procedure.
- Continue attending watershed meetings

Measurable Goals

See Appendix A, Activities C-2, C-4 and C-5, to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Illicit Discharge Elimination Program

Objective

To effectively implement MDOT's approved Illicit Discharge Elimination Program including dry weather screening of priority outfalls and a procedure for accepting and following through with reported illicit discharges/connections.

Dry Weather Screening

Initial dry weather screening of 128 priority road-stream crossings over impaired water bodies, as set forth in the SWMP, was completed in 2006. Three hundred and ninety-three (393) outfalls were identified at these crossings and 361 of them were ruled as having no apparent illicit connections. The thirty-two (32) remaining outfalls are pending further investigation as follows: (See Appendix D, *Illicit Discharge Elimination Program*, for investigation maps saved on a CD-ROM.)

- 1 needs to be cleared of sediment with work scheduled for early spring 2007 (Bay Region)
- 1 needs to be televised with work scheduled for early spring 2007 (Bay Region)
- 1 letter was sent to property owner, follow-up investigation was conducted and no sign of discharge remaining (Bay Region) (See Appendix D for a copy of the letter)
- 2 letters were sent to appropriate local agencies to continue illicit confirmation work as illicit connections are located outside of the MDOT right-of-way (ROW) (Metro Region) (See Appendix D for copies of letters)
- 27 need to be tracked further upstream

More details regarding dry weather screening investigations, such as sample analysis results and upstream tracking, are located in MDOT's dry weather screening database.

Reported Illicit Discharges

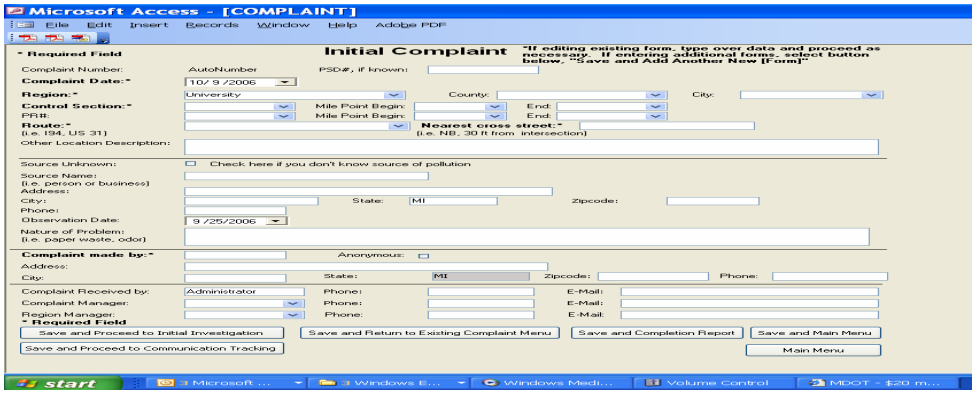
In addition to illicit discharges found during dry weather screening, illicit discharges were found by MDOT staff or outside sources and reported to MDOT. The status of these reports is as follows: (See Appendix D for reported discharges.)

- February 3, 2006 – Secondary containment lagoon discharge into MDOT's system – *Resolved* (Southwest Region)
- July 26, 2006 – Concrete-laden runoff into storm drain at M-14 construction site – *Resolved* (Metro Region)
- August 21, 2006 – Pipes entering ROW with dark water - *Resolved* (Southwest Region)
- September 5, 2006 – Pipe entering ditch with black discharge and odor. Letter has been sent to suspected source. – *Unresolved* (Southwest Region)
- November 2, 2006 – Concrete slurry/dust entering ditch. Source is reconstructing driveway to prevent discharge. MDOT will follow-up. – *Monitoring* (Southwest Region)

IDEP Reporting System

For tracking purposes, the reported illicit discharges are recorded in the IDEP Reporting System database. The database was developed in 2005 using *Microsoft Access.* Each region maintains its own database and is responsible for tracking its reported illicit discharges in the database. The database allows the user to input pertinent information regarding illicit discharges and helps track communications concerning the discharge.

Figure 1 MDOT IDEP Reporting System



Training for the use of the database was conducted at the spring region resource specialist conference on April 27, 2006 as detailed in the *MDOT-Sponsored Education and Outreach* section of this report. See Figure 1for a screenshot of the database.

Legal Authority for Illicit Discharge/Connection Removal

There has been no change to MDOT's legal authority requiring illicit discharges/connections be removed from its drainage system.

IDEP Construction Advisory

In September 2006, a Construction Advisory (CA 2006-12), *Reporting Illicit Discharges and Illicit Connections*, was issued to the Department reminding construction staff to follow Bureau of Highway – Instructional Memorandum 2004-10, *Illicit Discharge Elimination Program Procedure*, when an illicit discharge/connection is encountered. The procedure is summarized in the Construction Advisory and also contains the name of the IDEP Coordinator for each region. See Appendix D for a copy of CA 2006-12.

Statewide Outfall Mapping

As required by MDOT's Storm Water Phase II NPDES Permit, MDOT has developed a statewide outfall map, using Geographic Information System (GIS) software, showing the locations of known MDOT outfalls. The outfalls were located based on 1) design-survey data and 2) GPS coordinates from the dry weather screening effort. The map is posted on the MDOT Storm Water Public Web Page and is organized by region and county. The map link is located on the "illicit discharge" page. The maps will be updated annually with the latest information and will continue to be posted on the Web site. It is the intent of MDOT to expand on (or keep maps current) these maps in coordination with the MDOT Asset Management group, which has an interest in the attributes of the outfalls as well. See Appendix D for copies of the maps saved on a CD-ROM.

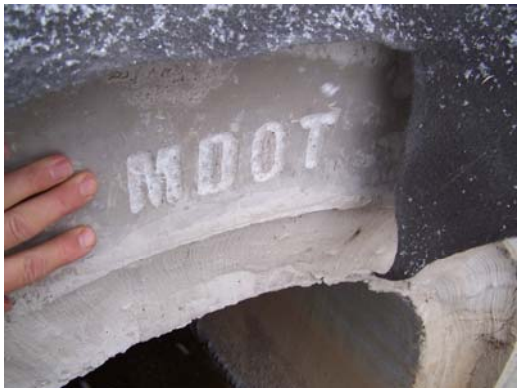
Tap-in/Discharge Permit

MDOT distributes storm water educational material with its tap-in/discharge permit application. Entities requesting to tap-in/discharge to MDOT's drainage system are required to obtain a permit. In 2006, 25 permit applications with educational information were distributed. In 2007, new storm water educational information, focusing on illicit discharge prevention, will be distributed with the permit applications.

Outfall Labeling

As reported last year, MDOT requires all work which includes culvert end sections, headwalls or other locations such as wing walls, retaining walls, etc. where storm water will discharge directly from the MDOT drainage system to the waters of the state be labeled with 'MDOT'. See Figure 2 for a photograph of a labeled outfall. For outfalls labeled in 2006, see Appendix D. Note that in the future, these outfalls will be included on the statewide outfall map once the procedure for doing so is established.

Figure 2 Labeled MDOT Outfall, 2006



Focus for 2007

The IDEP focus for 2007 is to continue to train field staff on their role in identifying and reporting illicit discharges/connections and to continue to accept and follow-up on reported illicit discharges/connections. Reported illicit discharge complaints will be recorded in the IDEP Reporting Database within each region.

Upcoming IDEP activities:

- Section 9.13, *Illicit Discharges into MDOT Storm Water Drainage Systems*, of the Construction Permit Manual will be revised and reissued.
- In coordination with MDOT's asset management efforts, a procedure will be developed to streamline the process for compiling new outfall locations and updating outfall maps annually.

Measurable Goals

See Appendix A, Activities I-1, I-2, I-3, I-4, I-5, C-10, C-12 to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Post Construction Storm Water Management

Objective

To determine and implement the procedure for choosing post construction storm water BMPs, which may be structural, vegetative, or operational, as appropriate. The procedure includes coordination between environmental, design, construction, and maintenance staff early in project planning.

Drainage Manual

Revisions of the MDOT Drainage Manual were distributed to MDOT staff and appropriate construction and consulting staff. The Revised Drainage Manual is located on the MDOT Public Web Site.

Native Planting Demonstration Projects

MDOT is planning three native planting/water quality demonstration projects along three Michigan roads. The projects will be incorporated into 2008 construction projects as vegetated swales and will include an assortment of native plants.

Research suggests that one benefit of using native plants versus traditional roadside vegetation is that the native plants in combination with uncompacted soil will reduce storm water runoff to the waters of the state. The native plants reduce discharge through their extensive root system, which promotes infiltration and evapotranspiration, and through their adaptability to the Michigan environment. MDOT will also be looking at maintenance requirements associated with these projects.

Funding for the projects has been requested through Transportation Enhancement funds and is included below under the sub-heading *Transportation Enhancement Fund Projects.*

Post Construction BMP Recommendations

Although the formalized procedure for selecting, applying, and maintaining post construction BMPs will not be approved until 2007, a considerable effort has been in place for many years to review all projects for their affect on water quality. In 2006, 295 categorical exclusion projects and 2 major action projects [those requiring an Environmental Assessment (EA) or an Environmental Impact Statement (EIS)] were reviewed. It was determined that neither of the major action projects will have an adverse impact on water quality associated with storm water runoff. Table 2 shows a breakdown of the number of categorical exclusion projects reviewed in each region in 2006.

Table 2 Reviewed Categorical Exclusion Projects

Region	No. of Projects	% of Total Projects
Grand	69	23
Bay	55	19
University	43	15
Metro	38	13
Southwest	38	13
North	31	11
Superior	21	7
Total	**295**[1]	**100**

[1] *The total number of projects reviewed only includes those reviewed from March through December 2006.*

The major action projects include the following:

- US-2 EA (Lake Michigan and the Brevoort River) (creating roadside ditches)
- I-75 Bay Region EA (Dutch Creek, Squaconning River, Zeigler Drain, Goetz Drain, Davis Drain, and Kochville Drain) (enclosing median)

Most project reviews result in general water quality mitigation recommendations such as retaining existing open drainage where possible, avoiding tree removals within 25 feet of water bodies, and reducing runoff velocities where possible. In some cases, project reviews result in specific water quality mitigation recommendations. A sample of projects receiving specific recommendations is included below:

<u>M-52, City of Manchester, Washtenaw County: River Raisin</u>

Extensive new curb and gutter were proposed. Alternatives to curb and gutter were discussed but none were feasible given the location. Mitigation for increased water quantity was not feasible, so hydrodynamic separator units were recommended to remove sediments and gross solids from the runoff prior to discharge to the River Raisin.

<u>Reconstruct M-99 through Hillsdale, Hillsdale County: St. Joseph Tributary</u>

Reconstruction and realignment of road includes upgrade to storm sewer outlets. Widening of riprapped ditch was recommended to slow water and allow more sediment to settle out prior to discharge to Wolf Creek. This was the only feasible solution to reduce sediment and water velocities at this location.

US-31, Manistee County: unnamed stream and adjacent wetland

Catch basins and storm sewer will be adjusted to correct drainage problems. This project is anticipated to have a positive impact on water quality in the area of this project and be an improvement over the current drainage situation. Recommendations include distributing runoff, using riprap, using drop structures or baffles, and requiring additional maintenance.

Drainage corrections along M-44 west of Belding, Ionia County: Flat River

Curb and gutter must be installed to correct drainage conditions. This project will result in an increased volume of water being discharged, although at a decreased rate, to the Flat River, the majority of which is listed by the State as a designated natural river. The potential exists for water quality to be impacted unless mitigation measures are provided. Runoff from this road discharges from a culvert under Wells Road and enters the Flat River via a 400-foot riprapped ditch containing established vegetation. Recommendations include not disturbing the 400-foot ditch, using drop structures, inspecting for erosion problems after construction, and requiring additional maintenance.

M-43 through Delton, Barry County: wetland adjacent to Crooked Lake

M-43 will be reconstructed with slight widening. Water from neighborhoods will be discharged at the same point as the road runoff. This project will result in an increase in the volume and flow rate of water being discharged to a wetland area adjacent to upper Crooked Lake. Minor impacts to water quality are anticipated; therefore, mitigation measures should be provided to the maximum extent practicable. Given the narrow ROW, location of underground utilities, and ownership of the outlet and other contributing drainage areas by the Barry County Drain Commissioner, options for storm water treatment by MDOT are limited. Recommendations included using a drop structure, using catch basin sumps, and requiring additional maintenance.

Also, a hydrodynamic separator will be included to treat commercial and residential runoff, retaining one of the existing drainage outlets near Bush Street. Placement of a sediment settling basin at the outlet is being coordinated with the MDEQ.

Culvert and major ditch reconstruct on I-196, Van Buren County: Deerlick Creek

MDOT has severe erosion problems in the roadside ditches. This project is not anticipated to have any long term, negative impacts to water quality or the fisheries resource but, in fact, will create a better situation for these resources. This project includes work in and around Deerlick Creek, a coastal tributary to Lake Michigan and listed by MDNR as a designated trout stream, making it a sensitive water body. Recommendations included shade tree replacement, fish protection during bypass pumping, and restoring ditches to a vegetated condition. The project is currently being implemented and will include all recommendations except shade tree replacement. Shade tree replacement was determined to not be necessary.

Riverwalk to be built by the Detroit Riverfront Conservancy

This project is located adjacent to the Detroit River and impacts to water quality need to be considered. MDOT is a partner in the project and has agreed to help with the National Environmental Policy Act (NEPA) process. The feasibility of using Best Management Practices to protect water quality should be evaluated during the drainage analysis. The parking lot area is a logical location to use BMPs (e.g. rain gardens, oil/grease separators, catch basin inserts, etc.). Recommendations include providing for a vegetated buffer strip between the riverwalk and the river, considering local watershed plans, using proper precautions/procedures when constructing near/in contaminated areas, disposing of contaminated materials properly, and developing a risk management plan.

Bridge replacement on M-53, Lapeer County: Peter's Drain

Water quality in Peter's Drain is being impacted by high inputs of sediment, fertilizers, and pesticides from a highly agricultural area. Possible revisions to the design of the bridge approaches were discussed at the plan review meeting on May 9, 2006. As a result of the group's discussion, the 12-inch downspouts at the end of the curb and gutter approaches in all four quadrants of the bridge will be removed from the plans and replaced with shortened curb and gutter approaches which will terminate onto short spillways, then riprap.

Post Construction BMP Installations

Several post construction BMP installations were completed in 2006 as described below. Note that these BMP installations are considered non-typical and MDOT conducts storm water activities regularly that are not typically tracked for inclusion in the storm water annual report, such as on-the-job training for waste oil disposal and repairing failing slopes at road-stream crossings.

Grand Region

A number of storm water BMPs were installed at the I-96/36th Street Interchange in Kent County. These BMPs include use of riprap and drop structures to slow down water, basins, and permanent check dams and cobble ditches.

Metro Region

In 2007, an engineered rain garden will be constructed at the Robert Scott Correctional Facility at 5 Mile and Beck in Northville Township.

Southwest Region

In April 2006, MDOT's first rain garden was constructed at the Turkeyville Rest Area, I-69 southbound in Calhoun County. The 500 square foot rain garden is designed to collect parking lot runoff and is planted with a variety of perennial plants. The storm water BMP is working well so far and two additional rain gardens are planned at Adair Rest Area (I-94 Eastbound, Saint Clair County) and Belleville Rest Area (I-94 Westbound, Wayne County). Maintenance, including weeding, is the responsibility of the contractor for the first year and of the rest area maintenance staff thereafter.

Lovers Lane Dry Pond Detention Basin in Kalamazoo / Portage was constructed north of I-94 and west of Lovers Lane. Construction of five new detention basins, also in Kalamazoo/Portage, along I-94 to the east of Oakland Drive in Kalamazoo County is planned in 2007.

The Marshall TSC coordinated with the Barry County Drain Commission to have a hydrodynamic separator installed in conjunction with a 2007 construction project.

Superior Region

The Superior Region had the following BMP installations:

- Storm sewer installation with detention basin, Cemetery Road, City of Houghton.
- Drop structure at Mill Rd/US-41 intersection Houghton County near City of Houghton.

Post Construction BMP Maintenance

As new post construction storm water BMPs are evaluated and approved by MDOT for regular use, a Performance Maintenance Guide will be developed. Currently, there is a maintenance guideline written in the Drainage Manual for each approved post construction storm water BMP.

List of Post Construction BMPs

A list of post construction BMPs has been initiated to help track the location and purpose of each MDOT post construction storm water BMP. In 2007, MDOT will select several known storm water BMPs for field inspection and maintenance recommendations, and as part of this effort, each region will have the opportunity to review the current BMP list and add to it as they become aware of existing BMPs and as new BMPs are constructed. See Appendix E for a copy of the list to date.

Transportation Enhancement Fund Projects

MDOT manages the federal Transportation Enhancement funds for Michigan and encourages grant applicants to include a water quality benefit within their project. Planned Transportation Enhancement fund projects with a noted water quality benefit include the following:

- Ingham County Road Commission is installing a storm water treatment structure on Hagadorn Road in coordination with the Grand River bridge replacement project just south of M-43
- The City of Lansing is installing engineered rain gardens and an oil/grit separator on Michigan Avenue from Larch Street to Pennsylvania Avenue to collect runoff in an ultra-urban area.
- MDOT is planning three native planting/water quality demonstration projects along three Michigan roads.

Focus for 2007

The Post Construction Storm Water focus for 2007 is to train roadway design staff on their role in integrating cost-effective post construction storm water management BMPs into their design projects.

Upcoming Post Construction Storm Water activities:

- MDOT/American Council of Engineering Companies (ACEC) Partnering Conference – cost-effective storm water BMP breakout sessions, February 1, 2007
- MDOT Design Conference – cost-effective storm water BMP presentation, June 2007
- Updating the existing Post Construction Storm Water BMP Training Module
- Post construction storm water BMP inspections
- Updating procedures and guidance materials regarding design and maintenance of post construction storm water BMPs
- Coordination with West Grand Neighborhood Organization and Roosevelt Park Neighborhood Association (Grand Rapids) Turner Gateway rain garden project

Measurable Goals

See Appendix A, Activities C-1, C-3, C-6, C-8, and C-11 to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Pollution Prevention/Good Housekeeping

Objective

To enhance current activities with the ultimate goal of preventing or reducing pollutant runoff from MDOT operations and properties.

Existing Pollution Prevention Practices

Many of MDOT's pollution prevention and good housekeeping practices have been in place at MDOT for many years and are described in facility Pollution Incident Prevention Plans (PIPP), procedure manuals, and guides maintained by the Maintenance Division and the Construction & Technology Division.

Maintenance Performance Guide Updates

In 2006, the maintenance performance guides for Catch Basin Cleanout (Activity #12200) and Ditch Cleanout (Activity #12300) were updated for Phase II Storm Water Permit Compliance.

The Catch Basin Cleanout guide was revised to require that contract agencies provide landfill test results and waste disposal quantities to MDOT with every invoice.

The Ditch Cleanout guide now requires 1) a Notice of Coverage when five or more acres of earth are disturbed, 2) an inspection by a certified storm water operator when more than one acre of earth is disturbed, and 3) specific soil erosion and sedimentation control procedures.

Contract agencies should have received a copy of these updates. In addition, a summary of these changes was published in the September 2006 Michigan Local Technical Assistance Program (LTAP) newsletter, "The Bridge."

State Police Truck Inspections

Each year, the Michigan State Police (MSP) uses MDOT facilities (rest areas, weigh stations) to host their truck inspections. The truck inspections derive from federal safety requirements but also benefit water quality as some inspection protocols look for leaking fluids. There are several levels of inspections ranging from an extensive 30-point inspection to a simple driver certification check.

In 2006, 50,348 inspections were conducted across Michigan. See Table 3 for an approximate break down of these inspections by region.

Table 3 State Police Truck Inspections

MSP Districts	Equivalent MDOT Regions[1]	2006 Total Inspections
1	University	8,872
2North	Metro	9,558
2South	University	10,769
3	Bay	5,705
5	Southwest	7,319
6	Grand	3,132
7	North	1,210
8	Superior	3,783
TOTAL		**50,348**

[1] *The MSP District boundaries and MDOT Regions do not match up exactly in the Bay, Grand, North, and University Regions. They differ by one or two boundary counties.*

Maintenance Facility Pollution Prevention

MDOT performed/installed a number of pollution prevention mechanisms in 2006 including the following:

- Installed concrete containment and covers (leak and squirt proof) for brine tanks (Southwest Region)
- Removed the underground storage tanks (USTs) and installed concrete aboveground storage tanks (ASTs) with spill proof secondary containment (Bay Region)
- Installed a new chemical storage building to store fertilizers, pesticides, etc. (North Region)
- Implemented new mercury switch disposal procedure. Central Maintenance in Lansing will store switches until they are recycled.
- Conducted pit cleaning of two bascule bridges. The collected storm water was tested and disposed of properly. (Bay, Southwest Regions)
- USTs are being tested annually for line tightness and leak protection. (Statewide)

Pollution Incident Prevention Plan Audits

The Pollution Incident Prevention Plan (PIPP) audits conducted in 2005 revealed no major problems at MDOT's maintenance garages and there were no major spills at any MDOT facilities in 2006. The next round of audits is scheduled for 2008.

Based on the results of the PIPP audits, a 3-year cycle of maintenance training (safety, hazmat, environmental) is being discussed.

Pesticide Applicator Program

Pesticides are applied on MDOT right-of-way in accordance with Applicator Certification Regulation 636 and Pesticide Use Regulation 637 of Part 83, Pesticide Control, of the Natural Resources and Environmental Protection Act, 1994 Public Act 451, as amended, (NREPA) and all other applicable state and federal regulations. These regulations require all applicators to be registered or certified to apply pesticides in the State of Michigan. MDOT requires all applicators to be certified if making roadside, guardrail, and brush pesticide applications on MDOT right-of-way. These applicators consist of MDOT, County and/or contractor personnel.

No changes were made to the existing Pesticide Applicator Program in 2006 and training scheduled for April 2007 will follow the same format as past years. The training is approved and attended by the Michigan Department of Agriculture (MDA). MDA will also issue recertification credits for the certified applicators. Approximately 60 attendees are anticipated for the 2007 training.

Road Salt/Sand Application

MDOT tracks biweekly salt and sand usage from MDOT crews and contract agencies. A salt storage program is also in affect to assist contract agencies in updating their salt sheds. Salt and sand usage on state trunklines from October 2005 through April 2006 are shown in Table 4 and Table 5, respectively. It should be noted that it is difficult to make any year to year comparisons using the data due to variation in weather conditions and road conditions. See Appendix F, *Pollution Prevention/Good Housekeeping*, for more details regarding salt and sand application.

Table 4 Salt Usage

	Winter 2004-2005	Winter 2005-2006
Region	**Salt Tonnage per Lane Mile**	**Salt Tonnage per Lane Mile**
Superior	24	23.9
North	23	25.3
Grand	24	25.1
Bay	19	16.1
Southwest	17	14.3
University	18	14.8
Metro	36	20.6
Average	**23**	**20.0**

Note: Lane mile totals per region are within 10% from year to year.

Table 5 Sand Usage

	Winter 2004-2005	Winter 2005-2006
Region	**Sand Tonnage per Lane Mile**	**Sand Tonnage per Lane Mile**
Superior	13.2	9.4
North	8.2	7.3
Grand	3.7	4.1
Bay	0.0	0.0
Southwest	0.1	0.0
University	2.9	2.3
Metro	0.0	0.0
Average	**4.1**	**3.3**

Note: Lane mile totals per region are within 10% from year to year.

As discussed in the MITA Cross-Section, Winter 2007, MDOT is conscious of its salt and sand usage and tests new de-icing and anti-icing technologies to reduce salt and sand usage. These technologies include pre-wetting, surface overlay systems, and global positioning systems.

Roadside Maintenance Activities

MDOT's Maintenance Environmental Team is involved with maintenance activities that help prevent storm water pollution, such as street sweeping, catch basin maintenance, ditch clean out, culvert and underdrain maintenance, mowing, brush control, and bank stabilization. Depending on the location, MDOT's direct forces or local public agencies working under contract for MDOT will conduct these maintenance activities on a regular basis.

Catch basin cleaning, approach sweeping, and curb sweeping conducted by MDOT crews is tracked using the Maintenance Activity Reporting System (MARS). The Program Cost Accounting (PCA) details and costs are tabulated in Appendix F. Street sweeping and flushing, culvert/underdrain maintenance, and ditch clean-out activities for the contracted agencies are tracked using

Local Agency Payment System (LAPS) and are tabulated in Appendix F.

The culvert/underdrain maintenance activities include repair, removal, or replacement of catch basins, pipe culverts, pipe boxes, pipe headwalls, and underdrain tiles to culverts in a clean and serviceable condition. $1,297,112 were spent for roadside and general maintenance activities conducted by MDOT, including cleaning catch basins and sweeping approaches and curbs. $4,628,214 were spent for approximately 55,826 hours of activities conducted by local agencies, including street sweeping and flushing of approximately 21,680 lane miles, maintaining approximately 17,294 lane miles of culverts and underdrains, and cleaning out approximately 16,576 lane miles of ditches.

Litter Pick-Up Programs

MDOT continues to work with external groups for litter pick-up along their roadways. These groups include Adopt-A-Highway Program, Youth Corps, and cooperation with the Department of Corrections. MDOT also conducts litter pick-up using MDOT maintenance crews. Additionally, mowing contracts require contractors to pick up litter before mowing. It is difficult to get an accurate quantity of litter removal as landfill receipts are not necessary for these programs. However, public feedback for these programs has been very positive.

Fertilizer Application

Fertilizer application is not currently regulated by the government. The application of fertilizer on MDOT right-of-way is typically done on construction projects. These fertilizer applications are completed in accordance with MDOT's Standard Specifications for Construction, Section 816 and Section 917. There are very limited fertilizer applications made by MDOT Maintenance staff. No changes were made to the fertilizer specifications in 2006.

Focus for 2007

The primary focus in 2007 will be to work with the Post Construction Storm Water Management Implementation Team to update procedures and guidance materials regarding maintenance of post construction storm water BMPs. In addition, the following is planned:

- Working with a contract agency, for demonstration purposes, to better track sediment removal from the MDOT drainage system.
- New contracts for pesticide work at tourist facilities (rest areas) in the Bay Region will include language that pesticide and fertilizer materials may not be left on impervious surfaces. All regions are encouraged to use similar language in contracts for this work.
- The capital outlay fund ($500,000) for environmental remediation continues to fund new projects at MDOT facilities such as aboveground storage tanks and chemical storage buildings.
- Incorporating pollution prevention on construction sites, such as bridge cleaning and concrete truck washout, into appropriate trainings.

Measurable Goals

See Appendix A, Activities C-9 and C-12 to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Soil Erosion & Sedimentation Control

Objective

To enhance the current activities to effectively reduce accelerated soil erosion and resulting sedimentation on MDOT construction and maintenance projects.

Existing SESC Practices

Many of MDOT's soil erosion and sedimentation control procedures have been in place at MDOT for many years and are described in the MDOT SESC Manual and Standard Specifications for Construction maintained by the Construction & Technology Division.

MDOT SESC Manual

A revised SESC Manual was approved by MDEQ in July 2006. Since its approval, the manual has been distributed statewide and is now available to download from the MDOT Public Web Site at www.michigan.gov/mdot/. The manual was developed in cooperation with MDEQ to qualify MDOT as an Authorized Public Agency (APA). An APA is exempt from obtaining a Part 91 permit from a county or local enforcing agency but must still notify the agency of each proposed earth change.

SESC Quality Assurance/Quality Control (QA/QC) Reviews

MDOT is proceeding with the SESC QA/QC review process. From now until the end of the permit cycle (April 1, 2009), each Transportation Service Center will be reviewed twice per the QA/QC Plan. The reviews will be triggered by the Engineer Certification Program (ECP). The recent change in the ECP from a three-year cycle to a four-year cycle will require revisiting the SESC QA/QC process to determine if changes are necessary.

In 2006, over 50 SESC QA/QC reviews were conducted at construction sites statewide following the SESC Program Review Process which was approved by the Environmental Committee in 2006. See Appendix G, *Soil Erosion & Sedimentation Control,* for review locations and a copy of the SESC Program Review Process. Overall, MDOT was pleased with the outcome of the reviews but noted a few key deficiencies which were immediately addressed with the applicable parties at the time of the QA/QC reviews. These deficiencies will also be addressed in the upcoming construction season through additional advisories and discussions and include the following:

- An Earth Change Plan is required for work outside of the grading limits but within the MDOT Right-of-Way per R 323.1703.
- Silt fence must be trenched in.
- Inlet protection must be maintained and in cooperation with pavement sweeping.

Training: Part 91 and Part 31 of Act 451

Pursuant to Part 91 of Act 451, MDOT has established procedures for soil erosion and sedimentation control, as detailed in the MDOT SESC Manual. Targeted MDOT staff are trained and certified as required under Part 91. MDOT utilizes Certified Storm Water Operators as required under Part 31 of Act 451. Table 6 lists the number of staff in each region that are SESC trained and certified. Additionally, 435 MDOT staff are certified as Storm Water Operators.

Table 6 MDOT Staff SESC Trained and Certified

Region	Number of Staff SESC Certified
Lansing Central Office	16
Bay	74
Grand	75
Metro	119
North	86
Southwest	77
Superior	74
University	67
Total	**588**

The number of MDOT Staff trained and certified in Part 91 and Part 31 of Act 451 in 2006 increased substantially from 2005. In 2005, 171 MDOT Staff were certified as Storm Water Operators and 164 MDOT Staff were certified in Part 91.

Slope Restoration Construction Advisory

In October 2006, a Construction Advisory (CA 2006-15), *Slope Restoration*, was issued reminding those involved with MDOT construction to conduct timely slope restoration during the construction phase to minimize soil erosion and subsequent off-site sedimentation. The primary components of slope restoration include topsoil, fertilizer, seed and mulch. See Appendix G for a copy of CA 2006-15.

Focus for 2007

A SESC pocket guide will be developed for distribution at the 2007 MITA Superconferences and to the job-related public. This pocket guide will include an increased number of SESC details and photographs of

both acceptable and not acceptable construction site BMPs.

Upcoming SESC Activities:

- MDOT is currently working with industry to develop a Construction Quality Partnership (CQP). MDOT has selected five projects to pilot the CQP for the 2007 construction season. For these projects, MDOT staff will provide training for key Department and Contractor personnel involved with the projects. Each project will include four specific work items to improve construction quality. One of the work items will be SESC. This training is intended to enhance communication, decision-making skills and team building. The desired outcome will be improved project quality and regulatory compliance.

Measurable Goals

See Appendix A, Activity C-7 to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Michigan Department of Transportation
Phase II Storm Water Management Program
Annual Report
for January 1, 2006 - December 31, 2006

Appendices

Appendix A
Storm Water Management Plan Activity Sheets

Appendix A contains all of the activity sheets from Chapter 3 of the Storm Water Management Plan. Each activity sheet denotes modifications to the activity's interim milestones and measurable goals and also indicates which interim milestones and measurable goals have been completed or implemented as shown with gray shading.

MDOT WILL NO LONGER REPORT ON THIS ACTIVITY.

Activity E-1: Maintain and Use Lansing Information Center

Affected Party: MDOT Employees involved with the storm water plan.

Objective: To maintain a library of storm water-related materials for training and educating the job-related public, including video tapes, reference manuals and publications.

Description: A library of informational materials compiled to support activities performed for the MDOT Storm Water Management Plan. The Lansing Information Center is open and located in the MDOT Library housed at the Murray D. Van Wagoner Building, 425 W. Ottawa Street, Lansing MI 48909. Materials can be checked out by contacting the Aquatic Resource Specialist within the Environmental Section or the MDOT librarian.

Annual Reporting: Track the material usage, and the source and number of articles in library.

Related Activities: Activity A-1 - Program Assessment and Reporting; Activity T-1 - Training Modules; Activity T-3 - Part 91 and Part 31 Training; Activity T-4 - Storm Water Knowledge Survey

Permit Requirement: Part I.B.1.a(1): Educate the job-related public of hazards associated with improper disposal of waste/illicit discharges.
Part I.B.1.a(3): Educate the job-related public of watershed stewardship and implement program.

No.	Measurable Goals	Schedule	Responsible
1	~~The library of storm water-related materials will be updated quarterly with the most recent guidance, research, publications and training materials.~~ [*This goal is discontinued as it is not effective. Updated educational materials are better found online.*]	~~Quarterly, On-going~~	MDOT Sponsored Education and Outreach Team (E&O Team)
2	~~A list of~~ Storm water-related ~~materials~~ *links* will be updated quarterly on the MDOT Storm Water Public Web Site. [Modified]	Starting December 31, 2006 [On-going]	
3	~~Quarterly notices will be made in the Monday Memo to advertise the storm water-related library material.~~ [Modified] The MDOT Storm Water Public Web Site is noted on all MDOT storm water educational materials.	By August 1, 2005 [On-going]	
4	~~The library of storm water-related materials will be moved to a more prominent location.~~ [*Refer to MG #1*]	~~By August 1, 2005 [Completed]~~	
5	~~A system will be developed to track the checkout of library materials.~~ [*Refer to MG #1*]	~~By August 1, 2005 [Completed]~~	
6	A general survey of storm water awareness will be conducted as described in Activity T-4. The survey will be designed to assess the educational program as a whole including the effectiveness of article publication.	Baseline Survey-2005 [Completed]	Storm Water Program Manager
7	A follow up survey will be conducted in 2008 to assess the need for program modifications.	Follow up Survey-2008	Storm Water Program Manager

Activity E-2: Publish Articles in MDOT Publications

Affected Party: Job-Related Public

Objective: To educate the job-related public on watershed stewardship, the MDOT storm water program, illicit discharges, construction and post-construction BMPs, and/or new program announcements.

Description: Prepare storm water program articles for publication using internal MDOT publications. The articles are to provide information about the MDOT storm water program in a manner to gain understanding and support for implementing the program by the job-related public.

Annual Reporting: Track topics and number of articles circulated.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity E-1 - Lansing Information Center
Activity E-3 - MDOT Public Web Site
Activity T-4 - Storm Water Knowledge Survey

Permit Requirement: Part I.B.1.a(1): Educate the job-related public of hazards associated with improper disposal of waste/illicit discharges.
Part I.B.1.a(3): Educate the job-related public of watershed stewardship and implement program.

No.	Measurable Goals	Schedule	Responsible
1	Develop and publish storm water-related articles in a Region-based newsletter, Adopt-A-Highway newsletter, Monday Memo, or other appropriate newsletters at least quarterly throughout the Permit cycle. Contract agencies will be included on the newsletter distribution list.	Quarterly beginning April 1, 2006 [On-going]	E&O Team and MDOT Communications Staff.
2	Provide storm water information to contract agencies through the Michigan Local Technical Assistance Program (LTAP).	By February 1, 2006 [On-going]	E&O Team and Maintenance Environmental Team (MET)
3	A general survey of storm water awareness will be conducted as described in Activity T-4. The survey will be designed to assess the educational program as a whole including the effectiveness of article publication.	Baseline Survey-2005 [Completed]	Storm Water Program Manager
4	A follow up survey will be conducted in 2008 to assess the need for program modifications.	Follow up Survey- 2008	Storm Water Program Manager

Activity E-3: Provide Information on Watershed Stewardship on the MDOT Public Web Site

Affected Party: Job-Related Public and Traveling Public

Objective: To educate the job-related and traveling public on MDOT's watershed stewardship practices and promote these practices on all projects where feasible.

Description: MDOT developed a public information Web site about the Phase II storm water program. The Web site provides general information about watershed stewardship practices as well as links to pertinent storm water-related materials. This information will be maintained and monitored to report Web site usage.

Annual Reporting: Track internal and external Web site hits and the number of SWMP document downloads on the MDOT Storm Water Public Web Site.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity E-1 - Lansing Information Center
Activity E-2 - Publish Articles in MDOT Publications
Activity T-4 - Storm Water Knowledge Survey

Permit Requirement: Part I.B.1.a(1): Educate the job-related public of hazards associated with improper disposal of waste/illicit discharges.
Part I.B.1.a(3): Educate the job-related public of watershed stewardship and implement program.
Part I.B.6: Ensure MDOT employees maintain and follow proper pollution prevention controls.

No.	Measurable Goals	Schedule	Responsible
1	The MDOT Storm Water Public Web Page will be updated quarterly with the most recent MDOT storm water information and news.	Quarterly [On-going]	E&O Team and MDOT Information and Technology Mgr.
2	A link to the MDOT Storm Water Public Web Page will be added to the MDOT Public Web Site home page. [*This is turning out to be difficult as it is highly competitive to be allotted space on the homepage.*]	By April 1, 2006 [When possible]	Storm Water Program Manager
3	A storm water-related quiz/comment form will be developed for inclusion on the MDOT Storm Water Public Web Page. [Modified] *A Jeopardy-type format has been selected for this activity.*	By December 31, 2005 [Completed]	E&O Team and MDOT Information and Technology Mgr
4	A general survey of storm water awareness will be conducted as described in Activity T-4. The survey will be designed to assess the educational program as a whole including the effectiveness of article publication.	Baseline Survey- 2005 [Completed]	Storm Water Program Manager
5	A follow up survey will be conducted in 2008 to assess the need for program modifications.	Follow up Survey- 2008	Storm Water Program Manager

Activity E-4: Provide Education Materials along with Tap-In/Discharge Permit Applications

Affected Party: Applicants obtaining a Discharge/Tap-In Permit and Region/TSC Staff involved with reviewing and approving permits.

Objectives: To inform applicants of acceptable discharges into the MDOT drainage system, and also of the potential negative impacts to water quality from unacceptable or illegal discharges and ways to mitigate these impacts. To inform MDOT permitting and utilities staff statewide that this education material will be distributed with the tap-in/discharge permit and that educating applicants is important to protecting water quality.

Description: Prepared education materials for typical development activities connecting to MDOT facilities. Established and implemented procedures for distributing these materials.

Annual Reporting: Track quantity of permit applications/educational materials distributed.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity I-4 - Updates to Legal Authority

Permit Requirement: Part I.B.1.c: Provide pollutant prevention information to applicants that apply to tap into the MDOT drainage system.

Part I.B.1.c: Train MDOT employees to provide pollution prevention education during application process.

No.	Interim Milestones	Schedule	Responsible
1	Develop educational material to be included in the tap-in/discharge permit application.	Completed in November 2004	IDEP Team
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Distribute education materials to 100% of tap-in/discharge permit applicants.	Ongoing beginning December 2004	MDOT Permitting Staff
2	Instruct MDOT staff to distribute materials as instructed in the revised Construction Permit Manual (CPM).	By June 1, 2005 [Completed]	
3	Review the adequacy of the procedure for distributing materials.	Every five years	

Activity E-5: Notify and Invite Public to Review and Comment on the Storm Water Management Plan (SWMP)

Affected Party:	Traveling Public, Job-Related Public, NPDES Watershed Permit Stakeholders, Local Stream / Watershed Protection Groups
Objective:	To obtain comments, statewide, from the public on the SWMP.
Description:	Establish procedures for the public notice and distribution of the draft SWMP. Provide at least 30 days for public review and comment.
Annual Reporting:	Track public comments. Track number of downloads of the draft SWMP from Web site
Related Activities:	Activity A-1 - Program Assessment and Reporting Activity E-3 - MDOT Public Web Site
Permit Requirement:	Part I.B.2: Encourage public input. Part I.B.2.a: Notify public of when and where preliminary and final SWMP are available for review. Part I.B.2.b: Input actively sought from stakeholder groups and local organizations for comment on SWMP.

THIS ACTIVITY IS COMPLETE AND WAS REPORTED ON IN THE ANNUAL REPORT FOR 7/1/03-12/31/04

Activity E-6: Determine Partnership Potential with MDEQ Statewide Public Education Program

Affected Party: Traveling Public

Objective: To evaluate the potential for MDOT to educate the public through the MDEQ statewide public education program.

Description: As an alternative to performing a stand-alone education program for the traveling public, MDOT will evaluate providing financial support to a statewide campaign being developed by MDEQ. If MDOT decides not to support the MDEQ campaign, they would be required to perform their own program, in which case, a program plan will be developed and submitted to MDEQ for approval.

Annual Reporting: MDOT will decide whether or not to participate in statewide program.

Related Activities: Activity A-1 - Program Assessment and Reporting

Permit Requirement: Part I.B.1.b: If the MDEQ develops a statewide public education program, MDOT may either seek a partnership agreement with the MDEQ for implementation of Part I.B.1.b. of this Permit, or develop and implement a program to increase awareness and seek positive public behavior.

No.	Measurable Goals	Schedule	Responsible
1	Attend meetings with MDEQ statewide education advisory committee and MDEQ decision makers.	Once MDEQ finalizes their statewide public education program, MDOT will decide within 6 months whether or not to participate. A public education plan will be developed within 12 months if MDOT chooses not to participate.	Consultant and MDOT Storm water Program Manager
2	Obtain statewide campaign materials including cost to participate and evaluate the potential value of entering into a partnership with MDEQ.		
3	Develop participation agreement with MDEQ or develop an MDOT Public Education Plan (PEP).		

Activity T-1: Present Applicable Training Modules to the Job-Related Public

Target Audience:	Lansing and Region/TSC Staff and contract agencies
Objective:	Educate the Job-Related Public about the Storm Water Management Program.
Description:	Use the four 15 minute MDOT storm water program training modules to train Lansing and Region/TSC staff and contract agencies. • Module One: Introduction to SW Management • Module Two: Best Management Practices • Module Three: Maintenance Considerations • Module Four: Illicit Discharge & Maintenance
Annual Reporting:	Track training attendance. Track contract agencies receiving modules.
Related Activities:	Activity T-4 - storm water survey; Activity I-3 - illicit discharge notification; Activity T-3 - Part 91 and Part 31 training
Permit Requirement:	Part I.B.1.a(1), Part I.B.1.a(2), Part I.B.1.a(3), Part I.B.4.b(2), Part I.B.6

No.	Interim Milestones	Schedule	Responsible
1	Determine target audiences for the storm water modules. [Modified] *Determine target audiences annually for new procedure training.*	By June 1, 2005 [Modified] *On-going*	Implementation Teams as appropriate
2	Add storm water awareness training to existing MDOT training database (On-Track) to track individual employee training. Include training modules as part of select employee performance evaluations in 2006. [Modified] *Incorporate routine trainings into existing MDOT training database (On-Track) to track individual employee training.*	During 2006 [On-going]	E&O Team
3	Provide train-the-trainer preparation for presenters.	On-going	Implementation Teams as appropriate
4	Ensure modules are delivered during staff meetings and other meetings as warranted.	On-going	Implementation Teams as appropriate
5	Develop training evaluation surveys.	July 1, 2005 [Modified] *On-going*	E&O Team
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Review and update modules. [Modified] *Review and update routine trainings.*	Annually starting October 1, 2005 [Modified] *On-going*	E&O Team and MDOT Staff
2	Train Region/TSC Staff with storm water-related responsibilities on the four storm water modules. [Modified] *Train Region/TSC Staff with storm water-related responsibilities on storm water issues relevant to their job.*	By April 1, 2009	Implementation Teams as appropriate
3	Encourage trainees to complete training evaluation at the close of each training session.	Start Aug. 1, 2005 [Modified] *On-going*	Implementation Teams as appropriate
4	Provide modules to contract agencies and contracting associations with a request to use the modules. Provide information through the Michigan Local Technical Assistance Program (LTAP). [Modified] *Provide training and information regarding storm water issues to contract agencies and associations. Provide information through LTAP.*	By February 1, 2006 [On-going]	Maintenance Environmental Team (MET)
5	A general survey of storm water awareness will be conducted as described in Activity T-4. The survey will be designed to assess the educational program as a whole including the effectiveness of article publication.	Baseline Survey-2005 [Completed]	Storm Water Program Manager
6	A follow up survey will be conducted in 2008 to assess the need for program modifications.	Follow up Survey-2008	Storm Water Program Manager

Activity T-2: Certify MDOT's Staff for Pesticide/Fertilizer Application

Target Audience: MDOT Maintenance Staff and Contract Agencies

Objective: To reduce pollution entering waters of the state, statewide, that originates from pesticide/fertilizer application.

Description: The existing training and certification program for pesticide/fertilizer applications will be evaluated and tracked to document performance and to prevent storm water pollution. Results will be used to recommend changes if appropriate.

Annual Reporting:

- Track the number of individuals attending annual pesticide training.
- Track number of MDOT personnel certified as a pesticide applicator.
- Summarize evaluation and review of programs, policies, procedures and information.
- Report changes to fertilizer specifications.

Related Activities: Activity A-1 - Program Assessment and Reporting

Permit Requirement: Part I.B.6.f: Minimize the discharge of pollutants related to storage, handling and use of herbicides/fertilizers. Provide employee training for herbicides/fertilizers to protect water quality.

No.	Measurable Goals	Schedule	Responsible
1	MDOT Staff applying pesticides will be trained and certified annually per Michigan Department of Agriculture requirements.	On-going	MDOT Maintenance Staff
2	MDOT Staff or Contract Agencies will follow MDOT's Standard Specifications for Construction, Sections 816 and 917 for fertilizer application practices.	On-going	MDOT Maintenance Staff
3	Evaluate application practices and pollution prevention measures and recommend and formalize any changes if appropriate.	Annually starting April 1, 2006 [On-going]	Maintenance Environmental Team, MDOT Maintenance Staff

Activity T-3: Train Staff Responsible for Administering Part 91 and those having Decision Making Authority for SESC Plan Development or Review, Inspections, or Enforcement; and Storm Water Operators as Required under Part 31

Affected Party: MDOT Maintenance Supervisors and Coordinators and Construction Supervisors

Objective: To reduce non-storm water discharges to the MEP to receiving water bodies.

Description: The existing MDEQ sponsored Soil Erosion and Sedimentation Control (SESC) training program will be attended by appropriate maintenance staff. Successful completion of the training and certification of storm water operators will be documented.

Annual Reporting: Total number of staff trained and certified for compliance with Part 31 and Part 91 requirements.

Related Activities: Activity A-1 - Program Assessment and Reporting

Activity C-7 - QA/QC Protocol for Construction Storm Water Control

Permit Requirement: Part I.B.5.a: MDOT shall meet the following requirements on MDOT construction sites statewide, but may rely on the MDOT SESC Plan and Michigan's Permit by Rule to the extent that those controls meet the requirements: 1) Implement soil erosion and sedimentation controls, 2) Control demolition and construction waste materials at construction sites, 3) Consider potential water quality impacts during road construction plan reviews, and 4) Inspect sites to assure that pollution control measures are appropriate and functional.

Part I.B.6: The program shall include employee and contractor training to prevent and reduce storm water pollution through proper implementation and maintenance of BMPs. The program may be developed and implemented using BMP guidance and training materials that are available from federal, state or local agencies.

No.	Measurable Goals	Schedule	Responsible
1	MDOT Staff Responsible for Administering Part 91 and those having Decision Making Authority for SESC Plan Development or Review, Inspections, or Enforcement will receive NPDES training.	On-going	MDOT Maintenance Supervisors and Coordinators and Construction Supervisors
2	MDOT Staff Responsible for Administering Part 91 and those having Decision Making Authority for SESC Plan Development or Review, Inspections, or Enforcement will be certified as Storm Water Operators as Required under Part 31.	By April 1, 2006 [On-going]	
3	Add NPDES training to MDOT Performance Excellence Division tracking system (On-Track).	By April 1, 2006 [Completed]	MDOT Storm Water Program Manager

Activity T-4: Survey MDOT Staff on Storm Water Knowledge

Affected Party: Representative MDOT Staff

Objective: To determine the current level of storm water knowledge for a statistical mix of administrative, technical, professional, and engineering staff to evaluate the effectiveness of the education program.

Annual Reporting:

- Report the survey results.
- Report the results of subsequent survey and compare.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity E-1 - Lansing Information Center
Activity E-2 - Publish Articles in MDOT Publications
Activity E-3 - MDOT Public Web Site
Activity T-1 - Training Modules for Job-Related Public

Permit Requirement: Part I.B: The MAXIMUM EXTENT PRACTICABLE requirement shall be met by implementation of BMPs to comply with minimum measures for which the permittee has authority, implementation of BMPs to comply with minimum levels of storm water pollution control established in TMDLs if applicable, and a demonstration of effectiveness or environmental benefit for each BMP.

No.	Interim Milestones	Schedule	Responsible
1	Develop and prepare baseline survey for distribution.	Completed	Consultant and MS4 Team
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	A general survey of storm water awareness will be conducted as described in Activity T-4. The survey will be designed to assess the educational program as a whole including the effectiveness of article publication.	Baseline Survey-2005 [Completed]	Storm Water Program Manager
2	A follow up survey will be conducted in 2008 to assess the need for program modifications.	Follow up Survey-2008	Storm Water Program Manager
3	Review the 2005 survey for baseline information.	By April 1, 2006 [Completed]	Consultant and MS4 Team
4	Review the 2008 survey to determine program effectiveness.	By April 1, 2009	MDOT Storm Water Program Manager
5	Increase the number of staff who are fully aware of MDOT's storm water program by 20% from 2005 to 2008.	2005 to 2008	N/A

Activity I-1: Submit and Implement Mapping Schedule for Outfalls (urbanized areas only)

Affected Party: MDOT Staff and Contractor/Consultant

Objective: To develop a mapping schedule and complete mapping of outfalls in MDOT right-of-way in urbanized areas including MDOT roads crossing 305(b)-listed water bodies and other non-impaired water bodies.

Annual Reporting: Track completed maps.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity I-5 - Map Known Outfalls
Activity C-10 - Procedure for Outfall Labeling

Permit Requirement: Part I.B.3.a: Within one year, submit schedule for maps of known outfalls.

Maps shall be developed for outfalls at roadway crossings no later than expiration of Permit.

No.	Interim Milestones	Schedule	Responsible
1	Complete maps of outfalls at stream crossings over or within 300 feet of impaired waters of the state within urbanized areas based on field inspection of top priority outfalls.	By April 1, 2009	Consultant And IDEP Team
2	Complete maps of outfalls at stream crossings over waters of the state within urbanized areas that are not field screened based on a GIS analysis.	By April 1, 2006 [Completed]	Consultant And IDEP Team
3	Develop process for notifying consultant of newly constructed outfalls.	By April 1, 2009	Consultant And IDEP Team
4	Link outfall screening/investigations to the asset management team's inventory database procedure.	By April 1, 2009	Consultant And IDEP Team
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Map outfalls in MDOT right-of-way in urbanized areas according to the schedule posted in the SWMP.	See Table 3-3 of the SWMP	Consultant And IDEP Team

Activity I-2: Perform Inventory and Dry Weather Screening on Outfalls

Affected Party: Consultant, MDOT Region Storm Water Coordinators, and Storm Water Program Manager

Objective: To identify illicit discharges and connections from the MDOT storm sewer system within 2000 Census urbanized areas as prioritized in the IDEP Plan.

Annual Reporting:

- Number and location of confirmed outfalls.
- Total number of suspected illicit connections/discharges identified.
- Number and location of manholes tested for each suspected illicit connection/discharge.
- Results of sample analysis.
- Description and number of illicit connections/discharges verified.
- Estimated amount and type of pollutant removed.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity I-1 - Submit and Implement Mapping Schedule for Outfalls
Activity I-4 - Updates to Legal Authority
Activity I-5 - Map Known Outfalls

Permit Requirement: Part I.B.3.b: Outfalls prioritized and top priority outfalls (305(b)-listed water bodies impaired by untreated sewage, bacteria, pathogens, nutrient enrichment, nuisance plant growth, nuisance algal growth, low dissolved oxygen, sediments, oil or grease, fish kills, and fish or macroinvertebrate communities rated poor) shall be screened for dry weather discharges.

Part I.B.3.b: Use screening results to identify and eliminate illicit discharges as expeditiously as practicable.

Part I.B.3.b: Illicit connections that cannot be disconnected immediately shall be identified in annual report and eliminated as soon as possible.

No.	Measurable Goals	Schedule	Responsible
1	Follow illicit discharge procedure (Section 3.3) for 100% of illicit discharges found.	Beginning April 1, 2005 [On-going]	Consultant, IDEP Team, And Region IDEP Coordinators
2	Update MDEQ of the areas selected for dry weather screening.	Monthly starting November 1, 2004 [On-going]	Consultant, IDEP Team, And Region IDEP Coordinators

Activity I-3: Receiving and Notifying MDEQ of Illicit Discharges and Actions Taken

Affected Party: MDOT Region Storm Water Coordinators, TSC Managers, and Storm Water Program Manager

Objective: To receive reports and notify the MDEQ of illicit discharges, statewide, to the MDOT storm sewer system. To take action toward removing these discharges.

Description: Procedure for receiving and responding to reports of illicit discharges is established as part of Section 9.13 of the Construction Permit Manual. Training to effectively implement the procedure will be conducted. Procedure for receiving reports from construction site runoff is already in place as part of the SESC Manual.

Annual Reporting:

- Track the number of reports received and the follow-up actions taken.
- Track the number of illicit connections/discharges identified and removed.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity T-1 - Present Training Modules to Region/TSC staff
Activity I-4 - Updates to Legal Authority

Permit Requirement: Part I.B.3.c: Provide a system to accept and respond statewide to reports of illicit discharges received from job-related public.

No.	Interim Milestone	Schedule	Responsible
1	Add illicit discharge reporting and notification information to Training Module Four. [Modified] *Develop illicit discharge reporting and notification training and provide to region IDEP coordinators.*	By June 1, 2005 [Modified] *By May 1, 2006* [Completed]	E&O Team
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Train Maintenance and Construction staff with storm water responsibilities to follow the illicit discharge notification procedure.	By December 1, 2005 [On-going]	E&O Team and Region IDEP Coordinators
2	Add Illicit Discharge Notification training to existing MDOT employee training database (On-Track).	By April 1, 2006 [Completed]	Storm Water Program Manager

Activity I-4: Report Updates and Changes to Legal Authority Status

Affected Parties: Landowners discharging or planning to discharge to MDOT's drainage system, MDOT Permit & Utilities Staff

Objective: To regulate discharges to MDOT's drainage system and require compliance with its permit.

Annual Reporting: Report changes to legal authority by revising Sections 9.13 and 14.01 of the Construction Permit Manual.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity I-2 - Perform Inventory and Dry Weather Screening on Outfalls
Activity I-3 - Receiving and Notifying MDEQ of Illicit Discharges and Actions Taken

Permit Requirement: Part 1.B.3.d(1): Legal authority to regulate the contribution of pollutants to the drainage system.
Part 1.B.3.d(2): Legal authority to regulate the rate of water inflow.
Part 1.B.3.d(3): Legal authority to prohibit illicit connections/discharges into drainage system.
Part 1.B.3.d(4): Legal authority requiring compliance with conditions in Permit.

No.	Measurable Goal	Schedule	Responsible
1	Assess legal authority annually to determine if any updates or changes are necessary.	Annually [On-going]	Permits/ Utilities [Modified] *IDEP Workgroup*

Activity I-5: Map Known Outfalls (statewide)

Affected Parties: MDOT Region Storm Water Coordinators, Planning and Design, Construction & Technology Staff, and Asset Management

Objective: To map known outfalls statewide based on existing survey information. To develop and implement a procedure to revise the known outfall maps annually.

Annual Reporting: Document the procedure for making annual map revisions, and track updated outfalls.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity I-2 - Perform Inventory and Dry Weather Screening on Outfalls
Activity C-10 - Procedure for Outfall Labeling

Permit Requirement: Part 1.B.3.a: Within one year following the effective date of this Permit, the permittee shall submit a schedule for providing maps showing the location of known outfalls.

Known Outfall Mapping Schedule (statewide)
(from Table 3-2 in the MDOT Storm Water Management Plan)

Activity	Schedule	Responsible Party
Compile survey data.	By August 1, 2005 [Completed]	MDOT Supervising Surveyor
Develop guideline to define outfalls.	By August 1, 2005 [Completed]	Consultant, Outfall Mapping Workgroup
Develop draft known outfall maps.	By December 31, 2005 [Completed]	Consultant
Provide draft known outfall maps to region storm water coordinators.	By February 1, 2006 [Modified] *By May 1, 2006* [Completed]	Consultant
Review draft maps.	By May 1, 2006 [Completed]	Region Storm Water Coordinators and TSC/Region Staff
Revise maps.	By August 1, 2006 [Completed]	Consultant
~~Provide final known outfall maps to MS4 Committee.~~	~~By September 1, 2006~~	~~Consultant~~
~~Review final maps.~~	~~By December 1, 2006~~	~~MS4 Committee~~
Finalize Maps.	By March 1, 2007 [Completed]	Consultant
Develop and implement an internal process for making annual map revisions.	By April 1, 2007	Outfall Mapping Workgroup, Consultant
Update known outfall maps annually and include in the annual progress reports.	Annually starting April 1, 2008 [On-going]	Consultant, MS4 Committee

No.	Interim Milestones	Schedule	Responsible
1	Compile survey data.	By August 1, 2005 [Completed]	MDOT Design Surveys
2	Develop guideline to define outfalls.	By August 1, 2005 [Completed]	IDEP Team
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Map known outfalls in MDOT right-of-way statewide according to the schedule posted in the SWMP.	Starting April 1, 2005 (See Table 3-2 in the SWMP) [Completed]	Consultant and IDEP
2	Develop and implement an internal process for making annual map revisions.	By April 1, 2007	Consultant and IDEP
3	Update known outfall maps annually and include in the annual progress report.	Annually starting April 1, 2008	Consultant and IDEP

Activity C-1: Maintenance Requirements for MDOT Permanent Best Management Practices (BMPs) (Post-Construction)

Affected Party: MDOT Maintenance, Maintenance Activity Reporting System (MARS) Team, Delivery, and Design Staff

Objective: To protect receiving water quality statewide by developing and implementing maintenance requirements for permanent MDOT-approved BMPs.

Annual Reporting: Track BMP maintenance activities using MARS.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity C-6: Implement Procedures to Select and Apply Best Management Practices for Storm Water Management Activities (Post-Construction)

Permit Requirement: Part I.B.4.b(2): Requirements for long-term operation and maintenance of BMPs.
Part I.B.6.a(1): Statewide routine maintenance for structural controls.
Part I.B.6.a(2): In urbanized areas, cleaning schedules may need to be enhanced if control measures fail to adequately reduce the discharge of pollutants to or from the drainage system.

No.	Interim Milestones	Schedule	Responsible
1	Review draft procedure for maintenance of permanent BMPs with appropriate MDOT entities for approval.	By June 1, 2006 [Modified] *By July 1, 2007*	Post-Construction Storm Water Management (Post-Const.) Team [Modified] *And Maintenance Environmental Team (MET)*
2	Document maintenance procedures and issue staff guidance.	By August 1, 2006 [Modified] *By Sept. 1, 2007*	
3	Review Maintenance Performance Guides and update accordingly.	By October 1, 2006 [Modified] *By Dec. 1, 2007*	
4	Notify appropriate staff of changes to manuals.	By December 31, 2006 [Modified] *By Feb. 1, 2008*	
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Develop and implement procedures for maintaining permanent BMPs not already having a maintenance procedure.	By December 31, 2006 [Modified] *By Feb. 1, 2008*	Post-Const Team [Modified] *And MET*
2	Develop and implement a procedure for maintaining each <u>new</u> permanent BMP within one year of formal adoption of the new permanent BMP.	As needed beginning December 31, 2006 [Modified] *Feb. 1, 2008*	Post-Const Team [Modified] *And MET*
3	Maintain existing permanent BMPs according to existing MDOT procedures.	Ongoing	
4	Evaluate ways to improve maintenance practices in urbanized areas if control measures fail to adequately reduce discharge of pollution.	As needed beginning April 1, 2006	

Activity C-2: Identify and Coordinate with Metropolitan Planning Organizations (MPOs) Having Storm Water Quality Control Programs.

Affected Parties: MDOT Staff and MPOs

Objective: To identify and coordinate, statewide, with MPOs having storm water quality control programs to properly handle storm water management issues during construction and maintenance activities.

Annual Reporting:

- Track letters distributed to the planning organizations.
- Track letters distributed to watershed and environmental groups soliciting area of concern comments.
- Track the major action environmental documents (environmental assessments and environmental impact statements) distributed to watershed groups for their comments.
- Track responses from watershed and environmental groups concerning areas of concern.
- Track any early coordination meetings held with watershed and environmental groups including whether groups attend a public meeting or comment on one of the major action documents.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity C-4 - MDEQ Early Coordination
Activity C-5 - Storm Water Discharges to TMDL Water Bodies

Permit Requirement: Part I.B: Within areas with watershed management plans, reducing discharge to the maximum extent practicable shall include implementation of BMPs to comply with watershed goals.
Part I.B.2.c: Where MPOs exist, MDOT shall identify and cooperate with local storm water master planning processes and the MPO. MDOT shall implement storm water controls as necessary to cooperate with local storm water master plans.
Part I.B.4.a: Program to coordinate with local planning efforts that conform with the cooperative planning requirements of 23 CFR 450.210 and 23 CFR 450.312 and which considers potential environmental effects of impervious surfaces.
Part I.B.4.a: MDOT shall make information available to local planning efforts.

No.	Measurable Goals	Schedule	Responsible
1	Notify recognized watershed and environmental groups that MDOT is accepting input on special BMP requirements for sensitive streams or portions of streams.	By June 1, 2005 [*Letter mailed February 2006*]	Consultant, Storm Water Program Manager
2	Consider watershed and environmental group input during early coordination of MDOT transportation projects. [*through Context Sensitive Solutions*]	Ongoing beginning April 1, 2006	MDOT Region Planning and Design Staff

Activity C-3: Procedure to Select, Apply, and Maintain Permanent Best Management Practices (BMPs) for Storm Water Management Activities (Post-Construction)

Affected Party: MDOT Maintenance, Planning and Design, Traffic & Safety, Maintenance Environmental Team (MET), and MS4 Team

Objective: To develop a procedure for selecting, applying and maintaining permanent BMPs for selected MDOT projects statewide.

Annual Reporting: Track permanent BMP installation and maintenance.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity C-4 - MDEQ Early Coordination
Activity C-5 - Storm Water Discharges to TMDL Water Bodies
Activity C-6 - Select, Apply, Maintain Permanent BMPs
Activity C-8 - Update Drainage Manual

Permit Requirement: Part I.B.4.b(1): Requirements for implementation of BMPs.
PartI.B.4.b(2): Requirements for long-term operation and maintenance of BMPs.

No.	Interim Milestones	Schedule	Responsible
1	Evaluate procedures for selecting, applying, and maintaining permanent BMPs. Approved MDOT permanent BMPs are located in the Drainage Manual. Develop a procedure to add new BMPs to the MDOT-approved BMP list.	By December 31, 2005 [Completed]	Post-Const Team
2	Review options with appropriate MDOT entities including development of a funding source based on research from other states.		
3	Make a recommendation for approval.		
4	Lay out a detailed framework for the approved procedure.	By August 1, 2006 [Modified] *By July 1, 2007*	
5	Document procedure and issue staff guidance.		
6	Update the existing process in the Drainage Manual and tie the process into the scope verification procedure.	By December 31, 2006 [Modified] *By Dec. 31, 2007*	
7	Notify appropriate staff of changes to manuals.		
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Develop procedure for selecting, applying, and maintaining permanent BMPs.	By December 31, 2005 [Completed]	Post-Const Team
2	All projects will be evaluated for permanent storm water BMP inclusion during scoping/early design.	Beginning December 31, 2006 [Modified] *By Dec. 31, 2007*	MDOT Design Staff

Activity C-4: Procedure to Work With MDEQ for Early Coordination on Initial Design Projects

Affected Parties: MDOT Development, Design, Real Estate, Environmental, and Maintenance Staff and MDEQ Staff

Objective: To have early coordination with MDEQ for input on BMP type and placement of select projects statewide.

Annual Reporting:

- Track projects where early coordination was sought with MDEQ and other regulatory agencies.
- Track projects where MDEQ provided timely recommendations.
- Document actions taken based on comments received from MDEQ.
- Document the results of the annual meeting with MDEQ Water Bureau on early coordination issues.

Related Activities: Activity A-1 - Program Assessment and Reporting; Activity C-2 - Coordinate with MPOs; Activity C-5 - Storm Water Discharges to TMDL Water Bodies; Activity C-8 - Update Drainage Manual

Permit Requirement: Part I.B.4.c: Allow MDEQ review of preliminary construction plans and provide input on placement of drainage and BMPs.

No.	Interim Milestones	Schedule	Responsible
1	Develop draft procedure for early coordination on initial design projects.	By April 1, 2005 [Completed]	Public Involvement and Participation (PIP) Implementation Team
2	Meet with MDEQ to further evaluate the early coordination procedure.		
3	Review options with appropriate MDOT and MDEQ entities and make a recommendation for approval. Update manuals and issue staff guidance accordingly.	By August 1, 2005 [Completed]	
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Develop procedure for coordinating with MDEQ on initial design projects.	By August 1, 2005 [Completed]	PIP Team
2	Train design staff with storm water responsibilities.	By April 1, 2006 [Modified] *By August 1, 2007*	Region Permitting, Planning, and TSC Design Staff
3	All projects triggering early coordination with the MDEQ-Water Bureau as described in the *Early Coordination for Post-Construction BMPs Procedure* will seek involvement from appropriate regulatory agencies.	By April 1, 2006 [Modified] *By 2007 Scoping Process*	Cost/Sched. Engineer, Region Permitting, Planning, and TSC Design Staff

Activity C-5: Review Projects with Storm Water Discharges to Water Bodies with a Promulgated Total Maximum Daily Load (TMDL)

Affected Party: MDOT Maintenance, Planning and Design, Traffic & Safety, Maintenance Environmental Team (MET), MS4 Team and TSC Staff

Objective: To develop a procedure to review projects with storm water discharges to water bodies with a promulgated TMDL and to and implement storm water controls statewide to meet responsibilities established by TMDLs to the MEP.

Annual Reporting: Track location of projects, location of TMDL waters and how MDOT complied with TMDL requirements.

Related Activities: Activity A-1 - Program Assessment and Reporting; Activity C-2 - Coordinate with MPOs; Activity C-4 - MDEQ Early Coordination; Activity C-8 - Update Drainage Manual

Permit Requirement: Part I.B.paragraph 2: If a water body has a TMDL, the appropriate water quality requirements for that pollutant may be defined in the TMDL. In that event, MEP includes, but is not limited to, the development, implementation and enforcement of storm water controls designed to meet the permittee's responsibilities established by the TMDL. Any reduction achieved through implementation of controls in accordance with Part I.B. of this permit shall count toward compliance with the waste load allocation of the TMDL.

No.	Interim Milestones	Schedule	Responsible
1	Post interactive mapping system on the MDOT Storm Water Web Site showing MDOT trunklines crossing 305(b)-listed water bodies. [Modified] *A mapping system will be posted on the Storm Water Web site with the new maps showing outfalls investigated as part of dry weather screening.*	By June 1, 2005 [Modified] *By June1, 2006* [Completed]	Consultant
2	Evaluate various options to review projects discharging to TMDL water bodies.	By October 1, 2004 [Completed]	PIP Team
3	Review options with appropriate MDOT entities.		
4	Make a recommendation for approval.		
5	Lay out a detailed framework for the approved procedure.	By June 1, 2006	
6	Document procedure and issue staff guidance.		
7	Review manuals and update accordingly.	February 1, 2007	
8	Notify appropriate staff of changes to manuals.		
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Review all new projects that discharge to waters of the state with a promulgated TMDL.	By April 1, 2005 [Completed]	MDOT Planning, Design, and TSC Staff

Activity C-6: Implement Procedures to Select, Apply, and Maintain Permanent Best Management Practices for Storm Water Management Activities (Post-Construction)

Affected Parties: MDOT Maintenance, Traffic & Safety, Planning, Design, and Construction Staff and Contractors

Objective: To protect receiving water quality by implementing post-construction BMPs statewide.

Annual Reporting: Track the permanent BMPs selected for earth-disturbing projects using existing databases. Report pollutant discharge reduction based on theoretical BMP performance.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity T-1 - Present Training Modules to Region/TSC Staff
Activity C-1 - Maintenance Requirements for MDOT Permanent Best Management Practices (BMPs)
Activity C-3 - Select, Apply, and Maintain Permanent BMPs
Activity C-8 - Update Drainage Manual

Permit Requirement: Part I.B.4.b(1): Requirements for implementation of BMPs.
Part I.B.4.b(2): Requirements for long-term operation and maintenance of BMPs.
Part I.B.6.a(2): In urbanized areas, structural controls may need to be enhanced if control measures fail to adequately reduce the discharge of pollutants to or from the drainage system.

No.	Interim Milestones	Schedule	Responsible
1	Upon having a BMP selection, application, and maintenance procedure in place (see Activity C-3), add procedural information to training modules.	By August 1, 2007	MDOT Planning, Design Staff
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Train design staff with storm water responsibilities on applying the permanent BMP procedure.	By April 1, 2007 [Modified] *By July 1, 2007*	MDOT Planning, Design Staff
2	Implement procedure to select, apply, and maintain permanent BMPs.	Ongoing beginning April 1, 2007 [Modified] *By Jan. 1, 2008*	MDOT Planning, Design, and Maintenance Staff
3	Develop a procedure to estimate pollutant discharge reduction based on theoretical BMP performance.	By December 1, 2007	Post-Const. Team
4	BMPs will be modified, replaced, or enhanced if they are not properly installed, maintained, and/or applied for pollutant control.	As needed beginning April 1, 2007 [Modified] *Jan. 1, 2008*	MDOT Planning, Design, and Maintenance Staff

Activity C-7: Internal Quality Assurance/Quality Control (QA/QC) Protocol for Construction Storm Water Control

Affected Parties: MDOT Construction & Technology (C&T), Planning, Design, and Maintenance Supervisors

Objective: To improve the effectiveness of temporary BMPs statewide through internal QA/QC for construction storm water control.

Description: Development of the QA/QC protocol is underway and will be submitted to EC for approval.

Annual Reporting: Track number and result of internal reviews and actions taken per procedure.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity T-3 - Train Staff Responsible for Administering Part 91 and those having Decision Making Authority for SESC Plan Development or Review, Inspections, or Enforcement; and Storm Water Operators as Required under Part 31

Permit Requirement: Part I.B.5.a: MDOT shall meet the following requirements on MDOT construction sites statewide, but may rely on their SESC Plan and the State of Michigan's Permit by Rule to the extent that those controls meet the requirements: 1) Implement soil erosion and sedimentation controls. 2) Control demolition and construction waste materials, concrete truck washout, chemicals, litter, and sanitary waste at construction sites that may cause adverse impacts to water quality. 3) Consider potential water quality impacts during road construction plan reviews. 4) Inspect sites to assure pollution control measures are appropriate.

No.	Interim Milestones	Schedule	Responsible
1	Develop draft QA/QC protocol.	By December 31, 2005 [Completed]	SESC Team, Design, Planning and Maintenance
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Develop a QA/QC protocol for construction storm water control.	May 1, 2006 [Completed]	SESC Team
2	Inspect all sites disturbing at least one acre.	Per the SESC Manual [On-going]	Part 91 Inspector
3	Follow up on all deficiencies noted in site inspections within the specified time frame.	[On-going]	Part 91 Inspector and Engineer

Activity C-8: Periodically Update Drainage Manual

Affected Party: MDOT Design, Construction & Technology and Region/TSC Staff

Objective: To update MDOT's policies and procedures for the design of drainage facilities by reviewing and revising MDOT's Drainage Manual as needed to include the latest details of the storm water management program.

Annual Reporting: Track changes made to the Drainage Manual

Related Activity: Activity A-1 - Program Assessment and Reporting
Activity C-4 - MDEQ Early Coordination
Activity C-5 - Storm Water Discharges to TMDL Water Bodies
Activity C-6 - Implement Procedures to Select, Apply, Maintain Permanent BMPs
Activity C-3 - Procedure to Select, Apply, Maintain Permanent BMPs

Permit Requirement: Part I.B.6.a(1): Routine maintenance on structural controls.
Part I.B.5.a(2): Control demolition and construction waste materials, concrete truck washout, chemicals, litter, and sanitary waste at construction sites that may cause adverse impacts to water quality.
Part I.B.4.c: Develop and implement a process for review of BMPs.

No.	Measurable Goals	Schedule	Responsible
1	Assess the need to update the Drainage Manual.	Annually beginning April 1, 2005 [On-going]	MDOT Design (Hydraulics) Staff
2	Update the Drainage Manual. Changes to manual must be approved by the Engineering Operations Committee (EOC).	As needed. [On-going]	
3	Notify appropriate staff of changes to the manual.		

Activity C-9: Documentation and Tracking of Road Maintenance Activities

Affected Party: MDOT Maintenance Staff, MARS Team, Maintenance Environmental Team (MET), and Contract Agencies

Objective: MDOT roadways will be operated and maintained and storage facilities will be constructed to reduce pollutants washing into surface waters statewide.

Annual Reporting:

- Estimate actual quantity of salt used for de-icing versus maximum calculated amount based on Maintenance Performance Guide 14100.
- Track hours of street sweeping and catch basin cleaning conducted.

Related Activity: Activity A-1 - Program Assessment and Reporting
Activity C-1 - Maintenance Requirements for MDOT Permanent BMPs

Permit Requirement: Part I.B.6: Ensure MDOT employees maintain and follow proper pollution prevention controls.
Part I.B.6.a(1): Describe and implement procedures for proper disposal of operation and maintenance waste.
Part 1.B.6.b(1):Construct, operate, and maintain surfaces statewide to reduce discharge of pollutants into system. Salt and sand applied for improved traction shall be prevented from entering receiving streams to the maximum extent practicable.
Part 1.B.6.b(1) Good Housekeeping implemented at salt and sand storage facilities.
Part I.B.6.b(2): Maintain existing street cleaning and catch basin maintenance activities.

No.	Measurable Goals	Schedule	Responsible
1	Investigate how to track contracted road maintenance activities. ~~using a pilot study with a county.~~ In the interim, discuss maintenance activities in terms of hours of labor.	By April 1, 2007 [Modified] *By Dec. 1, 2007*	Pollution Prevention & Good Housekeeping (PP&GH) Team, Maintenance Staff, Contract Agency
2	20,000 hours of street sweeping will be completed annually.	Annually	Maintenance Staff, Contract Agency
3	23,000 hours of catch basin cleaning will be completed annually.	Annually	Maintenance Staff, Contract Agency

Activity C-10: Procedure for Outfall Labeling

Affected Parties: MDOT Construction & Technology and Maintenance Staff

Objective: MDOT will provide permanent identification for all outfall structures installed after April 1, 2006 statewide.

Annual Reporting:

- Track the location and size of outfalls not labeled between April 1, 2005 and April 1, 2006.
- Track the location and size of outfalls labeled.

Related Activity: Activity A-1 - Program Assessment and Reporting
Activity T-1 - Training Modules to the Job-Related Public
Activity I-5 - Map Known Outfalls
Activity C-8 - Update Drainage Manual

Permit Requirement: Part I.B.6.c: Provide permanent identification of outfalls installed after April 1, 2005 that discharge directly into waters of the state. The primary operator of the drainage system shall be readily identifiable by observation of the outfall.

No.	Interim Milestones	Schedule	Responsible
1	Assess various procedures for labeling outfalls.	By January 31, 2005 [Completed]	SESC Team
2	Review procedures with appropriate MDOT entities and make a recommendation for approval.		
3	Develop a special provision for labeling.	By April 1, 2005 [Completed]	
4	Document procedure and issue staff guidance.		
5	Review and update manuals accordingly.		
6	Notify appropriate staff of changes to manuals.		
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Develop procedure for labeling all new outfall structures statewide.	By April 1, 2005 [Completed]	SESC Team
2	All new outfall structures will be labeled and maintained statewide.	Starting April 1, 2006 [Completed]	MDOT C & T and Maintenance Staff

Activity C-11: Review Flow Control Structures

Affected Party: MDOT Design and Planning Staff

Objective: MDOT will ensure that new flow control structures in urbanized areas assess impacts on water quality and whenever possible will examine existing flow control structures for inclusion of water quality BMPs to the MEP.

Description: MDOT is currently reviewing all new flow control structures as part of environmental clearance and will continue to do so. Existing flow control structures will be examined whenever possible.

Annual Reporting: Number of flow control structures reviewed and water quality benefits gained based on the theoretical pollutant removal rates.

Related Activity: Activity A-1 - Program Assessment and Reporting
Activity C-3 - Procedure to Select, Apply, and Maintain Permanent BMPs for Storm Water Management Activities (Post-Construction)

Permit Requirement: Part I.B.4.c: Develop and implement a process for review of BMPs.
Part I.B.6.d: Ensure new storm water flow management projects assess impacts of water quality on the receiving water and, whenever possible, examine existing projects for incorporation of water quality protection.

No.	Measurable Goals	Schedule	Responsible
1	All new flow control structures will be reviewed for inclusion of water quality BMPs.	Beginning August 1, 2005	MDOT Planning Specialists and Post-Const team
2	All new flow control structures will be evaluated for water quality benefit based on the theoretical pollutant removal rate.	Beginning April 1, 2006 [Modified] *December 31, 2007*	
3	Maintenance requirements for existing water quality controls having a water quality benefit will be developed to the maximum extent practicable.	By December 31, 2006 [Modified] *December 31, 2007*	
4	Applicable MDOT Staff will be trained to review new and existing flow control structures.	By April 1, 2007 [Modified] *December 31, 2007*	

Activity C-12: Audit the Pollution Incident Prevention Plan (PIPP) Requirements

Affected Party: MDOT Maintenance Staff, Region Resource Analyst/Specialist, Region/TSC Storm Water Coordinator, and Safety & Homeland Security

Objective: Assure that vehicle maintenance activities statewide do not pollute storm water runoff to the maximum extent practicable.

Description: Internal auditing of the PIPP is already conducted and implemented.

Annual Reporting:

- Summary of PIPP audits
- Document new programs, policies, procedures and information.

Related Activity: Activity A-1 - Program Assessment and Reporting
Activity T-1 - Training Modules to the Job-Related Public
Activity C-1 - Maintenance Requirements for MDOT Permanent BMPs

Permit Requirement: Part 1.B.6.: Ensure MDOT employees maintain and follow proper pollution prevention controls.
Part 1.B.6.a(1): Routine maintenance on structural controls.
Part 1.B.6.a(2): If necessary, enhance structural controls and cleaning schedules for adequate pollutant control.
Part 1.B.6.e.: Assure vehicle maintenance activities do not pollute storm water runoff.

No.	Measurable Goals	Schedule	Responsible
1	Conduct an audit of the PIPP requirements every three years.	Beginning April 1, 2006	Region Resource Analyst/Specialist, Region /TSC Storm Water Coordinator, or Safety & Homeland Security, PP&GH Team
2	Follow-up on any delinquent plan requirements and revise appropriately.	As needed.	
3	Formally accept the changes made to the PIPP.		

Activity A-1: Program Assessment and Reporting

Affected Party: MDOT employees involved with the storm water program.

Objective: To assess and report on the status of the MDOT Storm Water Management Plan (SWMP) on an annual basis through compiling measurable goal data, perform program assessment, review auditing activities, and prepare annual report.

Description: Conduct a yearly program assessment of the MDOT Storm Water Program and conduct annual reporting.

Annual Reporting:

- Track and document SWMP activities.
- Complete annual progress report.
- Conduct evaluation of program and make changes as needed.

Related Activities: All Activities

Permit Requirement: Part I.C: Program Assessment and Reporting

No.	Interim Milestones	Schedule	Responsible
1	Develop tracking protocol for entire plan to combine tracking and reporting for each activity. Coordinate with existing databases.	By April 1, 2006 [On-going]	Implementation Teams as appropriate
2	Review and test tracking program.	By April 1, 2007	
3	Compile data and draft the annual report.	Annually beginning February 1, 2005 [On-going]	Consultant
4	Review the overall status of implementation of the SWMP to assure compliance with its requirements.		MDOT Storm Water Program Manager
5	Review interim milestones and measurable goals for applicability. Revise measurable goals and milestones as needed.		Implementation Teams, Storm Water Program Manager
6	Review annual budget and revise fiscal analysis if necessary.		
7	Review the annual progress report. Provide comments and assure its accuracy.		Implementation Teams. Storm Water Program Manager
8	Conduct the final review of the annual report and issue approval for submitting to MDEQ		MDOT EC
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Submit annual reports to MDEQ.	By April 1 of each year [On-going]	Storm Water Program Mgr.
2	All tracking information for the previous year will be complete and accessible for inclusion in the annual report.	By January 2 of each year. [On-going]	Consultant, Storm Water Program Mgr.

Appendix B

MDOT-Sponsored Education and Outreach

Appendix B.1 Training, Conference, and Event Database
January 1, 2006 to December 31, 2006

PUBLIC EDUCATION

Name or Title of Meeting/Presentation	Date of Presentation /Meeting	Name of Presenter/Responsible Party	No. of Attendees/Number Reached	Education Activity*	Region							Audience												
					Bay	University	Grand	Metro	North	Southwest	Superior	Permits	Executives	Design Staff	Construction Staff	O&M Staff	Planning & Development Staff	Contractors - Maintenance	Contractors – Engineers & Traffic	Government (County)	General Public	General Public - Children	Tetra Tech Employees or Road Crew	Unknown MDOT Department
Career Day Presentations	4/27/2006	Molly Lamrouex, Bethany Matousek	50	CT																50			
Monday Memo - *Kalamazoo SW Work Group Praises MDOT*	4/17/2006	Department	---	PEM																			
MDOT SW Display at Kalamazoo Home Expo	3/8/2006-3/11/2006	Kalamazoo Storm Water Work Group	20,000	CT																20000			
Kids Flyer for Shadow Day	4/27/2006	Department	65	PEM																	65		
Watertown Township, MI - Web site tip sheets	4/20/2006	General Public	---	PEM																			
Trash Bags and Brochures for Operation Care	4/262006-4/29/2006, 7/1/2006-7/4/2006, 9/1/2006-9/4/2006	Department	100	PEM																100			
2006 MDOT Career Day Enviroscape Presentation	5/2/2006-5/3/2006	Department		PEM																X	X		
Highway Stormwater Management Webcast	5/18/2006, 6/15/2006, 10/26/2006, 12/7/2006	Department	29	PEM										X	X					X			
MITA Article on MDOT's SESC Program	Spring 2006	Department		PEM										X	X			X		X			
Storm water trinkets and pamphlets for "Galesburg Days"	Summer 2006	City of Galesburg	100	PEM																100			
SW general information, trinkets and pamphlets for UP Fair	Summer 2006	Dan Hamlin	250	PEM																200	50		
Career Day Presentations	2006	Coreen Strzalka		CT																X			
MDOT Toolkit and letter to Watershed Groups	2/2/2006	Department	120	PEM																120			
Storm water education materials for MACDC in Howell	6/7/2006	MI. Assn of County Drain Commissioners	25	PEM															25				
Storm water education materials for MACDC in Bridgeport	6/8/2006	MI. Assn of County Drain Commissioners	20	PEM															20				
Storm water education materials for MACDC in Allegan	6/26/2006	MI. Assn of County Drain Commissioners	27	PEM															27				
Storm water education materials for MACDC in Big Rapids	6/28/2006	MI. Assn of County Drain Commissioners	16	PEM															16				
SW handouts at Kalamazoo County Fair	8/7-11/2006	General Public	200-250	PEM																200	50		
Universal City, Texas (Brian Siniff) 2150 Universal City Blvd. Universal City, Texas 78148	8/28/2006	General Public	---	PEM																			
SW handouts at Texas Twp (Kzoo County) Fire Dept Open house	10/1/2006	General Public	150	PEM																100	50		
Metropolitan Detroit Science Teachers Association	10/21/2006	Science Teachers	1500	PEM																1500			
MDOT SW small display at Kalamazoo River SWMP public meeting	10/26/2006	General Public	50	PEM																50			
Community Expo (Lawrence, Michigan)	10/31/2006	Community Expo	60	PEM																60			
Sodus Township, MI. - storm water education materials	11/8/2006	General Public (Sodus Township)	50	PEM																50			
GCSI (Cindy)	2/15-17/2006	MDOT	300	PEM															X				
Floodplain Manager Conference - display and brochures	2/13-14/2006	Les Thomas		PEM																X			
MWEA Conference - storm water display and brochures	2/6-7/2006	Department		PEM																X			
Kids Flyer and Jeopardy game for Arizona DOT Public Outreach	11/17/2006	Stephanie Brown - Arizona DOT		PEM																X	X		
IDEP Brochure adoption by Village of Pickney, MI	12/14/2006	Village of Pickney	1000	PEM																1000			
					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88	22530	215	0	0

2006 New Materials	Date Created	Intended Audience
SESC Pocket Guide	Jan-06	Construction and Maintenance
IDEP Table Top Display	Aug-06	Construction and Maintenance
IDEP Brochure	Aug-06	Construction and Maintenance
SESC 'Dot" Animation	Feb-06	All MDOT Staff

*Education Activity Key
CT - Conferences and Trainings
PEM - Public Education Materials/News Articles
SW - Storm Water Related Meetings

Appendix B.1 Training, Conference, and Event Database
January 1, 2006 to December 31, 2006

Pollution Prevention/Good Housekeeping

Name or Title of Meeting/Presentation	Date of Presentation /Meeting	Name of Presenter/Responsible Party	No. of Attendees/Number Reached	Education Activity*	Region							Audience													
					Bay	University	Grand	Metro	North	Southwest	Superior	Permits	Executives	Design Staff	Construction Staff	O&M Staff	Planning & Development Staff	Contractors - Maintenance	Contractors – Engineers & Traffic	Government (County)	General Public	General Public - Children	Tetra Tech Employees or Road Crew	Unknown MDOT Department
State Police Truck Inspections at Rest Areas	2006	Department and State Police		ACT	5705	10769	3132	9558	1210	7319	3783														
Pesticide Training	4/25/2006-4/26/2006	Department	67	CT												67									
					5705	10769	3132	9558	1210	7319	3783	0	0	0	0	67	0	0	0	0	0	0	0	0

*Education Activity Key
CT - Conferences and Trainings
PEM - Public Education Materials/News Articles
SW - Storm Water Related Meetings
ACT- Storm Water Activity

Appendix B.1 Training, Conference, and Event Database
January 1, 2006 to December 31, 2006

Illicit Discharge Elimination Program (IDEP)

Name or Title of Meeting/Presentation	Date of Presentation /Meeting	Name of Presenter/Responsible Party	No. of Attendees/Number Reached	Education Activity*	Region							Audience												
					Bay	University	Grand	Metro	North	Southwest	Superior	Permits	Lansing	Design Staff	Construction Staff	O&M Staff	Planning & Development Staff	Contractors - Maintenance	Contractors – Engineers & Traffic	Government (County)	General Public	General Public - Children	Tetra Tech Employees or Road Crew	Unknown MDOT Department
IDEP Region Coordinator Training	4/27/2006	Tetra Tech	12	CT	1	1	1	2	2	2	1	1	1											
Maintenance Conference Display & Brochure	8/22/2006	Darwyn Heme	150	CT												150								
Real Estate Conference Display & Brochure	10/12-13/2006	Joe Rios	250	CT													250							
Utilities Conference Display & Brochure	12/5-7/2006	Joe Rios	250	CT													250							
IDEP Construction Advisory	9/20/2006	Construction and Technology	300	PEM											300									
IDEP Brochures with Tap-in/Discharge Permits	2006	Joe Rios	25	PEM																25				
					1	1	1	2	2	2	1	1	1	0	300	150	500	0	0	0	25	0	0	0

*Education Activity Key
CT - Conferences and Trainings
PEM - Public Education Materials/News Articles
SW - Storm Water Related Meetings

Appendix B.1 Training, Conference, and Event Database
January 1, 2006 to December 31, 2006

Post Construction Storm Water Management Practices

Name or Title of Meeting/Presentation	Date of Presentation /Meeting	Name of Presenter/Responsible Party	No. of Attendees/Number Reached	Education Activity*	Region							Audience													
					Bay	University	Grand	Metro	North	Southwest	Superior	Permits	Lansing	Design Staff	Construction Staff	O&M Staff	Planning & Development Staff	Contractors - Maintenance	Contractors – Engineers & Traffic	Government (County)	General Public	General Public - Children	Tetra Tech Employees or Road Crew	Unknown MDOT Department
Design Conference - Stormwater Management Presentation	6/27/2006	Judy Ruszkowski		CT										X										
					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Education Activity Key
CT - Conferences and Trainings
PEM - Public Education Materials/News Articles
SW - Storm Water Related Meetings

Appendix B.2 Web Page Tracking Database

MDOT Public Web Site Tracking Database
January 1, 2005-December 31, 2005

Pages	Web Link	1/1/06 - 1/31/06	2/1/06 - 2/28/06	3/1/06 - 3/31/06	4/1/2006-4/30/06	5/1/06-5/31/06	6/1/06-6/30/06	7/1/06-7/31/06	8/1/06-8/31/06	9/1/06-9/30/06	10/1/06-10/31/06	11/1/06-11/30/06	12/1/06-1231/06	Total # Visits
Home Page	http://www.michigan.gov/stormwatermgt	382	407	849	356	63	293	294		226	1013	463	263	4,609
Why is Managing Storm Water Important	http://www.michigan.gov/stormwatermgt/0,1607,7-205--91164--,00.html	36	25	39	27	8	Deleted?	Deleted?	Deleted?	Deleted?	Deleted?	Deleted?	Deleted?	135
MDOT's Current Storm Water Management Programs	http://www.michigan.gov/stormwatermgt/0,1607,7-205--93182--,00.html	53	65	65	44	91	61	51	45	32	104	50	44	705
EPA Requirements	http://www.michigan.gov/stormwatermgt/0,1607,7-205--93313--,00.html	27	29	28	25	22	16	21	15	13	35	35	17	283
Click On DOT For A Storm Water Message		0	0	3	1	1								5
MDOT Storm Water Web Site Survey	http://www.michigan.gov/stormwatermgt/0,1607,7-205--91826--,00.html	Not Updated	Not Updated	Not Updated	12	10	5	7	4	3	42	26	19	128
Jeopardy Game										0	19	1	0	20
Communities	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097---,00.html	22	16	51	24	33	39	41	35	11	87	45	17	421
Phase II Communities Alphabetically	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-93018--,00.html	15	13	35	11	10	14	37	25	4	9	14	6	193
Phase II Communities Sorted By Urbanized Area (UA)	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92922--,00.html	15	4	12	6	4	8	3	1	0	3	6	3	65
Ann Arbor	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92892--,00.html	6	2	4	6	1	3	1	1	0	3	6	0	33
Battle Creek	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92893--,00.html	5	0	1	5	2	2	0	0	1	0	5	2	23
Bay City	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92887--,00.html	4	0	1	4	1	8	2	1	0	0	5	0	26
Benton Harbor/St. Joe	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92894--,00.html	3	1	4	7	2	6	3	3	3	8	7	0	47
Detroit	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92895--,00.html	4	1	5	6	2	3	0	0	1	0	7	1	30
Elkhart, IN-MI	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92896--,00.html	1	0	1	8	1	2	1	2	0	0	4	0	20
Flint	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92897--,00.html	3	1	5	7	1	2	1	2	3	4	7	0	36
Grand Rapids	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92898--,00.html	7	3	3	2	3	4	5	3	0	2	5	0	37
Holland	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92899--,00.html	3	1	2	4	2	2	1	1	0	1	5	0	22
Jackson	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92900--,00.html	4	1	2	5	1	1	1	1	0	0	6	0	22
Kalamazoo	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92901--,00.html	2	0	2	4	3	2	3	2	2	3	5	0	28
Lansing	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92902--,00.html	4	1	6	4	2	3	1	0	1	0	6	1	29
Michigan City, IN-MI	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92903--,00.html	3	1	2	5	2	3	6	4	2	0	8	0	36
Monroe	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92904--,00.html	7	0	5	4	1	2	0	0	0	2	3	0	24
Muskegon	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92905--,00.html	5	2	3	6	1	1	1	1	1	0	2	2	25
Port Huron	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92906--,00.html	3	0	5	4	4	1	1	2	3	4	5	2	34
Saginaw	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92907--,00.html	3	1	3	5	2	3	0	0	0	2	6	0	25
South Bend	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92908--,00.html	6	1	2	4	3	2	1	2	3	0	5	3	32
S. Lyon-Howell-Brighton	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92910--,00.html	4	2	2	4	1	2	0	0	0	0	4	1	20
Toledo	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92911--,00.html	7	1	7	6	2	1	3	1	0	1	5	0	34
Metropolitan Planning Organizations	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92943--,00.html	6	7	3	5	4	8	9	4	5	12	9	5	77
Illicit Discharge	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30100---,00.html	108	46	119	145	131	120	109	105	74	238	127	76	1,398
IDEP Fieldwork Plan for Permit Year One	http://www.michigan.gov/stormwatermgt/0,1607,7-205--103745--,00.html	31	7	12	1	Deleted?	Deleted?	Deleted?	Deleted?	Deleted?	Deleted?	Deleted?	Deleted?	51
Resources	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30101---,00.html	46	26	42	26	52	47	23	20	15	66	41	19	423
Phase II Storm Water Management Plan	http://www.michigan.gov/stormwatermgt/0,1607,7-205--114322--,00.html	50	51	47	26	42	23	21	16	17	50	40	19	402
2004 Annual Report	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30101-140191--,00.html	13	5	15			4	0	1	1	4	10	0	53
Drainage Manual	http://www.michigan.gov/stormwatermgt/0,1607,7-205--93193--,00.html	455	401	493	431	444	440	424	435	385	456	377	379	5,120
Phase I Storm Water Management Plan	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30101-93181--,00.html	5	5	4	5	6	6	3	2	0	6	7	4	53
2003 Annual Report	http://www.michigan.gov/stormwatermgt/0,1607,7-205--93101--,00.html	6	1	3	25	3	2	0	2	0	4	7	0	53
2002 Annual Report	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30101-93161--,00.html	6	4	6	9	5	3	0	2	0	0	8	1	44
2005 Annual Report	http://www.michigan.gov/stormwatermgt/0,1607,7-205--140179--,00.html	No Updated	No Updated	No Updated	No Updated	23	14	8	10	11	35	31	13	145
Best Management Practices	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30102---,00.html	33	31	64	31	46	48	44	35	21	141	55	33	582
Structural BMPs	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30102-92963--,00.html	36	44	65	40	43	38	35	33	31	90	43	40	538
Vegetative BMPs	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30102-92965--,00.html	19	21	21	21	16	19	13	12	10	49	19	10	230
Operational BMPs	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30102-92975--,00.html	16	18	21	14	11	18	12	11	7	46	19	13	206
Education	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30103---,00.html	39	35	30	25	46	41	34	36	19	92	36	19	452
Public Education	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30103_30478---,00.html	19	75	111	101	91	66	56	52	39	272	81	31	994
MDOT Employee and Contractor Education	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30103_30373---,00.html	13	21	8	14	19	22	13	Deleted?	Deleted?	Deleted?	Deleted?	Deleted?	110
The MDOT Storm Water Internal Training Modules	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30103_30373-93136--,00.html	7	10	5	14	9	10	10	9	8	48	19	10	159
SESC Poster	/documents/mdot_ms4_2006_sesc_poster_150052_7.pdf	0	11	45	146	129	116	33		37	171	54	10	752
Kids flyer	/documents/mdot_ms4_pubilc_education_kids_flyer_152078_7.pdf	0	0	52	113	24				71	236	41	31	568
General Education Brochure	/documents/mdot_ms4_general_education_brochure_150054_7.pdf	0	17	76	49					49	94	41	38	364
Litter bag	/documents/mdot_ms4_litter_bag_graphic_150058_7.pdf	0	3	34	49					28	69	13	10	206
Display	/documents/mdot_ms4_storm_water__display_150060_7.pdf	0	14	31	16					8	98	21	13	201
Display for kids	/documents/mdot_ms4_kids_stormwater_display_150056_7.pdf	0	5	15	8					15	29	11	15	98
Litter bag	/documents/mdot_ms4_sw_litterbag_91939_7.pdf	1	2	4	1					28	69	13	10	128
IDEP Brochure	/documents/mdot_ms4_idep_brochure_final_171725_7.pdf									4	60	9	8	81
IDEP Display	/documents/mdot_ms4_idep__display_final_171723_7.pdf									7	141	29	16	193
Links	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30104---,00.html	19	22	24	20	27	37	41	25	19	46	25	19	324
Contacts		27	18	31		50	49	32	31	29	32	28	19	346
Full Community Contacts List	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30105---,00.html	10	0	11	35	7	5	3	5	8	8	15	6	113
MS4 Committee Contact List	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30105_31663---,00.html	13	14	14	25	44	13	10	11	15	9	7	5	180
Total Number of Site Downloads Per Month		1612	1492	2553	2001	1551	1638	1418	1008	1270	4013	1982	1253	21791

MDOT Public Web Site PDF Document Tracking

Months	1/1/06 - 1/31/06	2/1/06 - 2/28/06	3/1/06 - 3/31/06	4/1/2006-4/30/06	5/1/06-5/31/06	6/1/06-6/30/06	7/1/06-7/31/06	8/1/06-8/31/06	9/1/06-9/30/06	10/1/06-10/31/06	11/1/06-11/30/06	12/1/06-1231/06	Total # Visits
Drainage Manual													
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/documents/mdot_ms4_app_5_c_drainage_manual_94993_7.pdf	206	108	147	167	172	173	117	181	155	187	537	144	2,294.00
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/documents/mdot_ms4_app_91709_7._02_b_drainage_manual.pdf	18	20	28	21	24	9	17	15	15	27	13	10	217.00
/documents/mdot_ms4_app_91710_7._02_c_drainage_manual.pdf	20	20	22	21	33	9	14	17	10	21	12	10	209.00
/documents/mdot_ms4_app_91710_7._02_c_drainage_manual.pdf#search=%22%22study%20firm%22%22	0	0	0	0	0	0	0	0	2	1	0	0	3.00
/documents/mdot_ms4_app_91711_7._02_d_drainage_manual.pdf	102	122	87	69	81	67	80	65	74	68	57	47	919.00
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/documents/mdot_ms4_app_91714_7._02_f_drainage_manual.pdf	32	19	15	17	19	16	18	16	13	18	9	15	207.00
/documents/mdot_ms4_app_91717_7._03_a_drainage_manual.pdf	30	33	40	16	34	26	27	40	25	26	20	23	340.00
/documents/mdot_ms4_app_91718_7._03_b_drainage_manual.pdf	127	115	127	80	121	91	113	125	145	112	97	86	1,339.00
/documents/mdot_ms4_app_91719_7._03_c_drainage_manual.pdf	200	137	156	155	65	58	52	65	65	64	34	52	1,103.00
/documents/mdot_ms4_app_91719_7._03_c_drainage_manual.pdf#search='michigan%20rainfall%20data'	0	0	1	0	0	0	0	0	0	0	0	0	1.00
/documents/mdot_ms4_app_91720_7._03_d_drainage_manual.pdf	73	61	51	57	50	27	59	42	41	47	29	15	552.00
/documents/mdot_ms4_app_91722_7._04_a_drainage_manual.pdf	19	22	11	16	22	8	16	14	12	18	13	9	180.00
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/documents/mdot_ms4_app_91731_7._06_a_drainage_manual.pdf	15	12	11	9	16	9	9	13	12	11	7	10	134.00
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/documents/mdot_ms4_app_91739_7._08_a_drainage_manual_.pdf	16	17	18	15	27	12	12	11	12	13	10	13	176.00
/documents/mdot_ms4_app_91741_7._09_a_drainage_manual.pdf	12	19	24	17	17	13	8	10	11	11	13	10	165.00
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/documents/mdot_ms4_app_91746_7._10_b_drainage_manual.pdf	82	46	72	54	79	93	96	150	136	113	118	103	1,142.00
/documents/mdot_ms4_chap_91703_7._01_drainage_manual.pdf	79	105	77	64	91	68	83	107	81	85	66	58	964.00
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Sub Totals	4,773	4,125	5,106	4,059	4,681	3,786	3,584	3,944	3,480	5,403	3,663	3,127	49,731.00

Appendix B.3 Storm Water Awareness Survey Report – Executive Summary

EXECUTIVE SUMMARY

In 2005, the Michigan Department of Transportation (MDOT) administered a survey to its employees and the firms it contracts with to determine their level of awareness of various storm water management issues. Survey responses were solicited at MDOT professional development meetings throughout the state and via e-mail. The goals were to: 1) identify groups needing additional training, 2) clarify which issues need to be better conveyed, and 3) determine how best to communicate these issues.

The survey was completed by 302 individuals, including MDOT employees and contractors. All seven MDOT regions as well as those working in the Lansing Central Office were represented. Of particular interest were employees working in the Design, Construction, and Maintenance divisions of MDOT because of their involvement in implementing storm water management practices.

Similar questions were grouped to identify trends in perceptions, knowledge, actions, and learning modes pertinent to storm water management awareness. The following were key findings from the survey:

- Regional differences in how MDOT employees view storm water were apparent with primarily urban regions perceiving storm water to be a more significant water pollution problem than rural regions.
- Job function affects the amount of storm water management training an employee receives with the Construction Division receiving the most training.
- There was an overwhelming preference for the use of structural controls to control runoff. This would seem to indicate that storm water pollution is perceived to require a technical solution rather than a social solution.
- Among Maintenance Division employees, there is a perception that materials stored outside do not have an impact on water pollution.
- Although training impacted the perception that the survey respondents had about storm water issues, training did not necessarily impact the knowledge the survey respondents had about storm water issues.
- There were no perceived differences in actions between respondents that were trained from those that were not trained. Actions by all MDOT respondents were largely positive.
- A manual was the preferred learning material to help personnel follow proper storm water procedures. Classroom presentations were identified as the most effective learning mode.

The table below captures the above findings in order to better focus recommendations for future training.

Y = Yes N = No S = Somewhat 1 = Highest Priority/Preference 3 = Lowest Priority/Preference		Region			Job Division			
		Rural[1]	Urban[2]	Lansing/Statewide	Construction	Design	Maintenance	All Respondents
Training Are they getting storm water training?		Y	Y	N	Y	S	S	Y
Perception Are they in-line with the scope of the SWMP?		S	S	S	S	S	N	S
Knowledge Do they understand enough for their job?		S	S	S	Y	S	S	S
Actions Are they doing what SWMP requires?		Y	Y	Y	Y	Y	Y	Y
Preferred Learning Mode C = Classroom OL = On-line Tutorials F = Field Trip FM = Field Manual V = Video O = Other	1 2 3	C F V	C F V	F C V	C F V	C F V	C F V	C F V
Preferred Learning Materials E = Email P = Poster M = Manual V = Video N = Newsletter Article W = Web Site	1 2 3	M V E	M V W	P N M	M N V	M E P	M V N/W	M V P
Recommended Ranking for Training (based on survey results)		2	3	1	3	2	1	

1. Rural Regions = Bay, North, and Superior
2. Urban Regions = Grand, Metro, Southwest, and University

Based on the results of the survey, the following recommendations are offered.

1. Training should target groups that have previously received less training, such as those in the Design and Maintenance Divisions.
2. Training content should be specific to the target audience and address issues relevant to their region or division, as it pertains to storm water.
3. General education on storm water should become a component of job-related training and not a stand-alone part of the curriculum.
4. Social solutions to storm water problems (e.g. the proper location to wash vehicles or store materials) should be emphasized more in training along with technical solutions.
5. Periodic (e.g. yearly) refresher courses should be conducted on storm water maintenance procedures that should also stress the reasons why following them is important.
6. A variety of learning materials should be developed to improve the perception, knowledge, and actions of employees.
7. Classroom training, videos and field trips should be the main educational delivery vehicles or learning modes.
8. Training should be closely linked to operation manuals highlighting specific actions that employees can practice while on the job.

Since this survey was administered, MDOT has continued to restructure its storm water education program and some of the above

recommendations have already been implemented. For example, the Design Division will be targeted for training in 2007 and the Construction and Maintenance Divisions received a laminated pocket guide on soil erosion and sedimentation control. Out of these observations stem two additional recommendations:

- MDOT should evolve its storm water training into a comprehensive program, developing training manuals and materials which address storm water issues from the initial phases of a project to its on-going maintenance. Job divisions addressing their storm water portion of a project should be aware of their position in the development of a project as it relates to other divisions and storm water.
- MDOT should periodically administer (e.g. every two years) a more detailed survey to training recipients in order to continue to evaluate training effectiveness and make improvements to the program.

Appendix C

Public Involvement and Participation

MDOT
Michigan Department of Transportation

OFFICE MEMORANDUM

DATE: December 19, 2006

TO: Region Engineers
TSC Managers
Delivery Engineers
Development Engineers
Region Resource Staff

FROM: Judy Ruszkowski
Operations Environmental Stewardship Engineer
Storm Water Program Manager

SUBJECT: Storm Water Management Plan Activity C-4
Early Coordination Procedure for Post Construction BMPs

The Early Coordination Procedure described in the attached document will be implemented beginning with the scoping process on 2009 non-R&R projects, and 2012 R&R projects rated as categorical exclusions. The MS4 Public Involvement and Participation Sub-Team was charged with implementation of all early coordination related activities contained in the SWMP. MDOT's Environmental Committee has reviewed and approved this procedure. This document is being submitted to the MDEQ Storm Water Unit, as are all components of the department's SWMP.

Beginning January 1, 2007, at scoping, each region will identify the need for post-construction storm water Best Management Practices (BMPs) on individual projects and, using the specific trigger points outlined, determine if the project is subject to the Early Coordination Procedure. By identifying the need for post-construction storm water BMPs early in the process, these items can be included in the budget before projects are selected for inclusion in the Five Year Plan.

Each region should designate a person to coordinate the Early Coordination Procedure with the Aquatic Resource Specialist in the Environmental Section. The region permit coordinators are currently responsible for other early coordination activities (i.e. MDEQ-LWMD and MDNR) for issues pertaining to permits and, therefore, may be best positioned to assume this responsibility as well. The Aquatic Resource Specialist in the Environmental Section (currently Bethany Matousek at 517-241-2311) will provide assistance to the regions in determining when storm water BMPs are necessary for protection of water quality and site specification recommendations for appropriate BMP selection. Recommendations for appropriate BMP selection, as well as information regarding design criteria, appropriate sizing, manufacturer's specifications, and trouble shooting, will be provided by the Drainage Specialist in the Design Division's Hydraulics Unit (currently Coreen Strzalka at 517-373-3397).

By implementing the Early Coordination Procedure during the 2007 scoping process for 2009/2012 projects, MDOT will have an opportunity to get input from the MDEQ Storm Water Unit on projects that will be constructed beginning in 2009 (safety, capital preventive maintenance, and passing relief projects) and 2012 (R&R projects). The goal is to have the Early Coordination Procedure completed prior to scope verification. The Aquatic Resource Specialist in the Environmental Section is MDOT's single point of contact with the MDEQ Storm Water Unit for coordination of the Early Coordination Procedure. With the assistance of the designated representative from each region, the Aquatic Resource Specialist is responsible for providing project specific information to MDEQ staff and coordinating a site visit, if necessary. The Aquatic Resource Specialist will document and track the results of the Early Coordination Procedure, and organize an annual review of the procedure with the Early Coordination Work Group, as outlined in the procedure itself.

The MS4 Team will evaluate this procedure annually as part of the overall SWMP review. Modifications to this procedure will be made as necessary to ensure MDOT construction and maintenance projects are planned and completed with consideration for the natural resources of the State, as well as project schedule and cost.

As always, I am available to discuss any of the requirements of MDOT's SWMP. Questions about the Early Coordination Procedure can be directed to either me (517-322-5698) or Bethany Matousek, Aquatic Resource Specialist in the Environmental Section (517-241-2311).

Judy Ruszkowski

Attachment

JAR:kar

cc: Environmental Committee
MS4 Team
D. Christian – Tetra Tech
A. Thomas – Tetra Tech

Michigan Department of Transportation
SWMP Activity C-4
Early Coordination for Post-Construction BMPs

1. Purpose and Scope

Post construction storm water management for new development and redevelopment projects is one of the five elements included in the MDOT Storm Water Management Plan (SWMP). This plan element is supported by several storm water program activities. Activity C-4 of the plan calls for the development and implementation of a process by which roadway design plans will be reviewed for application of post construction best management practices (BMPs). In addition to the MDOT review, MDEQ will be provided the opportunity to review preliminary construction plans and to provide input on placement of drainage and BMPs.

MDOT and MDEQ-Water Bureau have found that this storm water permit requirement can be met by using an early coordination process similar to that required under the National Environmental Policy Act of 1969 (NEPA) to address issues related to storm water management. MDEQ-Water Bureau input earlier in the process of project design will facilitate issue identification and resolution. As a result, project design changes that minimize negative impacts or enhance positive impacts to the state's natural resources can be made more efficiently by MDOT.

Transportation projects conducted by MDOT involving federal funds administered by the Federal Highway Administration (FHWA) must be in compliance with NEPA. Compliance guidance is provided by the United States Department of Transportation (US DOT) in 23 CFR 771 *Environmental Impact and Related Procedures*. An Environmental Impact Statement (EIS) must be developed for those actions that will have a significant impact on the quality of the human environment. There are many classes of actions that, based on past experience with similar actions, do not involve significant impacts that are categorically excluded from further consideration under NEPA (i.e. Categorical Exclusions (CE)). If an action is not covered by a CE and its potential for significant impact is unknown, an Environmental Assessment (EA) is required to determine if an EIS is needed or if there can be a Finding of No Significant Impact (FONSI).

The existing NEPA process for major action documents (EA and EIS) includes early coordination with other affected agencies. The NEPA process is designed to ensure that all potential impacts, possible alternatives, and affected parties are identified and that the best available science is used to determine the impacts of the proposed action and alternatives. MDOT currently distributes these major action documents to various state regulatory agencies. MDOT will add the MDEQ Stormwater Permits Section MS4 Coordinator to the document distribution list as the single point of contact through which MDOT will distribute all major action documents to the MDEQ-Water Bureau.

Approximately 95% of MDOT's projects are covered by categorical exclusions and are typically exempt from the same NEPA requirements as major action documents. Many actions that are categorically excluded from further NEPA compliance, however, still require MDOT to apply for permits from MDEQ-LWMD. As part of the permitting procedure, MDEQ-LWMD reviews permit applications for unacceptable or avoidable impacts to the state's natural resources. The permit application process for MDOT categorical exclusion projects, however, usually occurs after project plans are nearly complete. At this point in MDOT's process, resource issues identified by MDEQ-Water Bureau are often difficult and costly to incorporate into the project design. In addition to satisfying the conditions of MDOT's statewide NPDES storm water discharge permit, the early coordination procedure with MDEQ-Water Bureau outlined in this document will allow

MDOT to identify issues and minimize impacts to water quality prior to submitting a permit application to MDEQ-LWMD. It is expected that this process will expedite MDEQ-LWMD's permit review process.

2. Issues That Will Trigger Early Coordination with MDEQ-Water Bureau

Actions that are categorically excluded from further NEPA compliance will be subject to early coordination between MDOT and MDEQ-Water Bureau for projects that result in an earth disturbance of more than one acre; **and** meet one or more of the requirements (triggers) listed in section 2.1; **and** meet one or more of the requirements (triggers) listed in section 2.2.

2.1 Projects that include one or more of the following:

2.1.1 Projects that result in a new storm water outfall to surface waters of the state. Surface waters of the state include all of the following, but do not include drainage ways and ponds used solely for wastewater conveyance, treatment, or control:

- The Great Lakes and their connecting waters,
- All inland lakes,
- Rivers,
- Streams,
- Impoundments,
- Open drains,
- Other surface bodies of water within the confines of the state; or

2.1.2 An increased discharge volume or peak flow rate of 20% or more per storm event as compared to discharges prior to the project.

2.2 Projects that include one or more of the following:

2.2.1 Discharges to water bodies as designated in PA 451 of 1994 Part 4. Water Quality Standards, Rule 323.1100 (4) and (6-7). This rule references MDNR publications "Coldwater Lakes of Michigan" (Appendix A), "Designated Trout Streams for the State of Michigan" (Appendix B), and "Designated Trout Lakes and Regulations" respectively (Appendix C); or

2.2.2 Discharges that may convey pollutants to surface waters of the state that would exceed a Total Maximum Daily Load (TMDL) approved by the U.S. Environmental Protection Agency. Pollutants of concern shall be limited to metals, sediments, oil and grease, fish kills, fish or macroinvertebrate communities rated as poor, and those which would contribute to low dissolved oxygen (Appendix D); or

2.2.3 Discharges to Outstanding State Resource Waters as identified in PA 451 of 1994 Part 4. Water Quality Standards, Rule 323.1098 (6) (Appendix E).

3. Early Coordination Process for Categorical Exclusion Projects

Early coordination for post construction storm water best management practices on categorical exclusion projects will involve the following process.

3.1 Identify Trigger Issue- MDOT staff will attempt to identify the trigger issue during Scoping. MDOT staff involved in issue identification will include Project Managers, Permit Coordinators, and, if needed, the Aquatic Resource Specialist in the MDOT Environmental Section. MDOT staff will coordinate on relevant issues prior to the MDOT Aquatic Resource Specialist initiating contact with MDEQ-Water Bureau staff.

3.2 Provide Information to MDEQ- MDOT will provide the following information to the appropriate MDEQ-Water Bureau District Supervisor for review and will notify the MDEQ-Water Bureau Permits Section MS4 Coordinator.

- Location map
- Existing ROW
- Scope of work
- Any available preliminary design
- Digital photos
- Early Coordination Project Review Sheet

MDEQ-Water Bureau will have 30 days from the date of transmittal to provide review and comments. If no comments are received during this time period, MDOT will proceed with the project as planned.

3.3 Schedule a Site Visit - The need for a site visit will be at the discretion of MDOT and MDEQ-Water Bureau staff. Additional staff specialists may be involved in the site evaluation if necessary. MDEQ staff in the Transportation Review Unit will be contacted when appropriate to be given the opportunity to participate in site visits.

3.4 Document Results of Early Coordination - This will consist of a summary of the results of the Early Coordination process and details needed for process tracking and evaluation. The summary will be provided by the Aquatic Resource Specialist to the Storm Water Program Manager for incorporation into the storm water program annual report.

4. Tracking and Measurement

MDOT will develop a database and tracking mechanism to store, analyze, and summarize the necessary information. The following information will be collected by each respective agency and provided to the other agency to allow evaluation of the effectiveness of this early coordination process:

4.1 The number of early coordination projects submitted to MDEQ-Water Bureau for review,

4.2 The dates on which those projects were submitted,

4.3 The dates on which MDEQ-Water Bureau review was completed and provided to MDOT,

4.4 The number of projects on which issues required further action to resolve,

4.4 Issues that may need to be added or removed from the process,

4.5 Issues that were missed but became a permitting issue.

5. Annual Process Review.

MDOT and MDEQ-Water Bureau will establish a workgroup to oversee the early coordination process. Representatives will meet at least annually, and more often if the workgroup finds it necessary, to review the past years' measurements, the effectiveness of the early coordination process, and to make recommendations for any process improvements as they may determine appropriate.

5.1 The MDOT members of the workgroup will be as follows:

- Environmental Section Aquatic Resource Specialist
- Hydraulics Engineer
- Region Permit Coordinators
- Storm Water Program Manager

5.2 The MDEQ members of the workgroup will be as follows:

- MDEQ-Water Bureau - Permits Section MS4 Coordinator
- MDNR Fisheries Division- Designated representative
- MDEQ-LWMD - Supervisor of the Transportation Review Unit

Appendix D

Illicit Discharge Elimination Program

See Appendix D.1 Dry Weather Screening Investigation Maps Saved on CD-ROM

Complaint Summary

Monday, December 04, 2006

Complaint #	*Region*	*Date of Observaion*	*Route*	*PSD #*	*PR #*	*Control Section*	*Source Name*	*Source Address*	*Nature of Problem*	*Status*
1	Southwest	8/21/2006					Hummel	8304 Maple Grove Rd	Two corrugated plastic pipes entering ROW adjacent to headwall. Dark water exiting one of the pipes. Pipe clogged. Once unplugged, water clear.	Resolved
2	Southwest	9/5/2006	M-140	577905		80031	unknown	39571 M-140	pipe entering ditchline opposite headwall. Slight odor. Black color.	
3	Southwest	11/2/2006	M-140			80031	Consumers Concrete	13271 M-140	concrete slurry/dust entering drainage ditch	
4	Southwest	2/3/2006	US-131				Schoolcraft Farm Services	16721 S. US-131 PO Box 326	Secondary containment lagoon discharge	Resolved

Construction Advisory

CA 2006-12
September 20, 2006

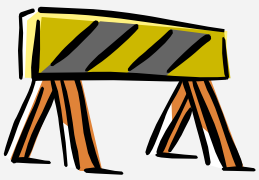
From Brenda O'Brien, Engineer of Construction and Technology

MDOT-Construction and Technology Support Area
P.O. Box 30049
Lansing, Michigan 48909
Phone/517-322-1087
Fax/517-322-5664
www.michigan.gov/mdot/

Index: Environment

Questions regarding this Construction Advisory should be directed to:

Judy Ruszkowski,
Operations Environmental Stewardship Engineer,
517-322-5698 or
ruszkowskij@michigan.gov



BJO:JAR

Reporting Illicit Discharges and Illicit Connections

MDOT's Statewide Storm Water Discharge Permit requires the department to have a process in place to receive and respond to reports of illicit discharges/ connections (ID/C) to our storm water drainage system.

Illicit Connections are any physical connection to MDOT's drainage system that 1.) conveys an illicit discharge or 2.) is not authorized or permitted by MDOT where such authorization or permit is required.

Illicit Discharges are any discharge or seepage into MDOT's drainage system that is not composed entirely of storm water, and which is not specifically exempt under MDOT's statewide permit.

MDOT's Illicit Discharge Elimination Program (IDEP) implementation team worked with our storm water consultant, Tetra Tech, to develop a database to record and track the status of all reported ID/Cs. Each region has designated one individual to serve as the IDEP Coordinator to ensure all reported ID/Cs are entered into the database for follow-up. In most regions, this person is also the Storm Water Coordinator.

Construction staff is reminded to follow BOH-IM 2004-10, *Illicit Discharge Elimination Program Procedure*, whenever a possible ID/C is encountered during the construction phase of a project. The procedure is summarized here.

1. The contractor notifies the MDOT staff when they encounter a suspected ID/C during construction. Examples are an unidentified pipe within a drainage structure or entering a ditch.
2. Contact the resource specialist, Storm Water Coordinator or the IDEP Coordinator for the region, if necessary, to assist in determining if an emergency situation exists. Examples of an emergency situation include untreated sewage, or strong chemical or fuel smell from the discharge flowing to our drainage system.
3. If an emergency situation does exist, MDOT staff must contact the Pollution Emergency Alert System (PEAS) at 1-800-292-4706 to notify MDEQ of the emergency.
4. If no emergency exists, attempt to determine the source of the discharge based on the surrounding land use and observable characteristics of the discharge, or direction of the pipe or other conveyance. Examples of non-emergency ID/Cs may include roof drains or sump pump discharges entering our storm water drainage system.
5. If you are unable to identify the source in a reasonable amount of time, record all observations about the discharge before continuing with construction in that area. Report this information to your region IDEP Coordinator so it can be entered into the IDEP database for tracking and, if necessary, follow up.
6. The IDEP Coordinator will then work with the TSC to identify the source and notify all appropriate agencies, following established procedures.

Remember, MDOT is required, as a condition of our storm water discharge permit, to document and follow

up on all IDCs that we are made aware of on our right-of-way. Most IDCs to our storm water drainage system discovered during construction originates from off our right-of-way. In this case, MDOT will refer the situation to the local health department, MDEQ or other regulatory agency. MDOT will then cooperate in any further investigation by these agencies where access to our right-of-way may be needed.

If you have any questions on how to report an illicit discharge or illicit connection, or if you would like to receive additional information on our permit requirements contact your region IDEP Coordinator listed here:

Superior Region – Dan Hamlin
North Region – Mike Rogers or Gary Niemi
Grand Region – Steve Houtteman
Bay Region – Cary Rouse
Southwest Region – Nick VanWoert
University Region – Bob Batt
Metro Region – Randy McKinney

See Appendix D.4 Statewide Outfall Maps Saved on CD-ROM

Appendix D.5 2006 Labeled Outfalls

Project	Outfall Location
1. M-10 Reconstruction near I-696 63081-45715A	Southbound M-10, Ramp S. Station 2541+00, 40 feet left of centerline, 15 inch RCP.
	Southbound M-10. Station 2518+35, 40 feet right of centerline, 18 inch CMP.
	Southbound M-10. Station 2520+72, 85 feet left of centerline, 12 inch CMP.
	Southbound M-10. Station 2520+93, 85 feet left of centerline, 12 inch CMP.
	Southbound M-10. Station 2520+20, 90 feet right of centerline, 12 inch CMP.
	Southbound M-10. Station 2523+00, 90 feet right of centerline, 24 inch CMP.
	Northbound M-10, Ramp Q/WB I-696. Station 1375+50. 60 feet left of off ramp centerline, 12 inch CMP.
	Northbound M-10, Ramp D. Station 311+00, 53 feet right of centerline, 18 inch RCP.
	Northbound M-10, Ramp J. Station 1008+75, 95 feet right of centerline, 12 inch RCP.
	Northbound M-10, Ramp J. Station 1008+77, 120 feet right of centerline, 12 inch RCP.
	Northbound M-10, Ramp J. Station 1008+76, 75 feet left of centerline, 18 inch RCP.
	Northbound M-10. Station 1367+25, 80 feet right of centerline, 12 inch CMP.
	Northbound M-10. Station 1370+25, 80 feet right of centerline, 12 inch CMP.
	Northbound M-10. Station 1370+25, 80 feet left of centerline, 12 inch CMP.
	Northbound M-10. Station 1372+51, 80 feet left of centerline, 12 inch CMP.
	Northbound M-10. Station 1373+05, 75 feet right of centerline, 12 inch CMP
	Northbound M-10, Ramp E. Station 509+45, 55 feet left of centerline, 12 inch CMP.
	Northbound M-10, Ramp E. Station 502+30, 23 feet left of centerline, 18 inch RCP.
2. I-696 near M-10 63101-54301A	Eastbound I-696. Station 1+819, 35 meters right of centerline, 300 mm RCP.
	I-696, exit ramp to southbound M-10. Station 7+373, 15 meters right of centerline, 3000 mm by 1500 mm tee, box.
	I-696, exit ramp to southbound M-10. Station 7+380, 10 meters right of centerline, 1676 mm RCP.
	I-696, exit ramp to southbound M-10. Station 1+535, 45 meters right of centerline, 450 mm RCP.
3. I-96 BL at Rouge River, Farmington Hills 63821-72614A	Station 13+72, 30.5 feet right of centerline, 15 inch RCP.
	Station 14+80, 31 feet right of centerline, 48 inch RCP.
	Station 15+75, 36.5 feet right of centerline, 12 inch RCP.

Appendix D.5 2006 Labeled Outfalls

Project	Outfall Location
4. US-24 at Silver Creek, Flat Rock 82051-48539A	Station 55+90, 70 feet right of construction centerline, 12 inch RCP.
	Station 56+10, 68 feet right of construction centerline, 48 inch RCP.
5. M-82 in Fremont 62011-79505A	Station 1143+88, 74 feet right of centerline, 18 inch RCP.
	Station 1144+29, 78 feet right of centerline, 24 inch RCP.
	Station 1144+26, 73 feet left of centerline, 24 inch RCP
6. M-20 at White River, White Cloud 62015-60572A	Station 568+00, 30 feet right of centerline, 24 inch RCP.
7. M-37 at M-82, Newaygo 62031-79781A	Station 273+35, 32.4 feet left of centerline, 36 inch RCP with galvanized end section.
8. M-78 at the Battle Creek River, Bellevue 23011-78400A	Station 588+45, 35 feet north of centerline, 15 inch RCP.
9. I-94 at Lovers Lane Bridge, Portage 39022-76448A	EB I-94 at Portage Creek, Station 1532+04, 105 feet right of construction centerline, 30 inch RCP.
	WB I-94 at Portage Creek, Station 1528+09, 100 feet left of construction centerline, 36 inch RCP.
10. M-99 in Springport 38011-75184A	Located behind the Springport Telephone Company. Station 16+85 (storm sewer stationing), 42 inch RCP.
11. M-51 over Brandywine Creek, Niles 11051-79453A	Station 259+50, 50 feet left of centerline, 36 inch RCP.
	Station 259+50, 55 feet right of centerline, 15 inch RCP.
	Station 260+00, 50 feet left of centerline, 30 inch RCP.
	Station 260+00, 55 feet right of centerline, 15 inch RCP.
12. M-53 over White Creek, Sanilac County 74012-79592A	Station 2167+15, 45 feet right of centerline, 24 inch CMP.
13. M-26 in South Range 31012-53244A	Station 1309+74, 225 feet left of centerline, 30 inch RCP.
14. M-107 West of Silver City 66061-80207A	Station 83+50, 32 feet right of centerline, 36 inch RCP, sloped metal end section.
	Station 89+50, 32 feet right of centerline, 24 inch RCP, sloped metal end section.
	Station 94+00, 36 feet right of centerline, 24 inch RCP, sloped metal end section.
	Station 97+00, 32 feet right of centerline, 24 inch RCP, sloped metal end section.
	Station 101+00, 32 feet right of centerline, 24 inch RCP, sloped metal end section.
	Station 105+50, 24 feet right of centerline, 18 inch RCP, sloped metal end section.
	Station 116+25, 28 feet right of centerline, 24 inch RCP, sloped metal end section.
	Station 130+00, 32 feet right of centerline, 24 inch RCP, sloped metal end section.
15. M-61, Airport Road to US-23, Standish 06021-56940A	Station 239+85, 22.5 feet left of centerline, 24 inch RCP.
	Station 240+00, 22.5 feet left of centerline, 12 inch RCP.
16. M-57 at the Shiawassee River, Chesaning 73021-79615A	25 feet north of centerline on west riverbank.

Appendix D.5 2006 Labeled Outfalls

Project	Outfall Location
17. I-94 at I-94BL, Port Huron 77111-45758A, 72406A	I-94 Eastbound, Station 1878+25, 37 feet right of edge of concrete shoulder, 14 foot by 6 foot box culvert
	I-94 Westbound, Station 2199+10, 10 feet left of edge of concrete shoulder, 14 foot by 6 foot box culvert
	I-94 Eastbound, Station 1842+00, 25.5 feet right of edge of concrete shoulder, 66 inch RCP.
	I-94 Westbound, Station 2162+85, 35 feet left of edge of concrete shoulder, 66 inch RCP.
	I-94 Eastbound, Station 1816+40, 33.5 feet right of edge of concrete shoulder, 42 inch RCP.
	I-94 Westbound, Station 2136+45, 34 feet left of edge of concrete shoulder, 42 inch RCP.
	I-94 Eastbound, Station 1806+15, 36 feet right of edge of concrete shoulder, 66 inch RCP.
	I-94 Westbound, Station 2125+41, 25 feet left of edge of concrete shoulder, 66 inch RCP.
	I-94 Eastbound, Station 1786+40, 40 feet right of edge of concrete shoulder, 58 inch by 91 inch RCP.
	I-94 Westbound, Station 2106+40, 28 feet left of edge of concrete shoulder, 58 inch by 91 inch RCP.
	I-94 Eastbound, Station 1764+00, 40 feet right of edge of concrete shoulder, 48 inch RCP.
	I-94 Westbound, Station 2084+00, 23 feet left of edge of concrete shoulder, 48 inch RCP.
	I-94 Eastbound, Station 1738+00, 44 feet right of edge of concrete shoulder, 60 inch RCP.
	I-94 Westbound, Station 2058+00, 40 feet left of edge of concrete shoulder, 60 inch RCP.
	I-94 Eastbound, Station 1653+00, 44 feet right of edge of concrete shoulder, 48 inch RCP.
	Range Road, Station 1+00, 14 feet left of edge of HMA shoulder, 48 inch RCP.
	Range Road Ramp A, Station 26+00, 40 feet left of edge of HMA shoulder, 66 inch RCP.
	Range Road Ramp A, Station 26+00, 43 feet right of edge of HMA shoulder, 66 inch RCP.
	Range Road Ramp E, Station 14+00, 33.5 feet left of edge of HMA shoulder, 66 inch RCP.
	Range Road Ramp E, Station 14+00, 46 feet right of edge of HMA shoulder, 66 inch RCP.
18. M-32 in East Jordan 15051-56932A	Station 7+64, 60 feet right of centerline, concrete headwall, 36 inch CPE.
	Station 7+64, 34 feet right of centerline, concrete headwall, 12 inch RCP.
19. M-125 over Little Sandy Creek Drain 58071-53258A	Station 8+97, 65 feet left, 15 inch RCP.
	Station 9+16, 63 feet left, 12 inch RCP.
	Station 8+80, 55 feet right, 12 inch RCP.
20. M-125 over Sandy Creek 58071-53258A	Station 110+04.5, 60 feet right, 12 inch RCP.

STATE OF MICHIGAN
DEPARTMENT OF TRANSPORTATION
KALAMAZOO TRANSPORTATION SERVICE CENTER

JENNIFER M. GRANHOLM
GOVERNOR

GLORIA J. JEFF
DIRECTOR

February 7, 2006

Schoolcraft Farm Services Inc.
Wilbur-Ellis Company
16721 South US-131
P.O. Box 326
Schoolcraft, Michigan 49087

Dear Property Owner:

The Michigan Department of Transportation (MDOT) is currently investigating its drainage system within Schoolcraft Township. During a field investigation on February 3, 2006, MDOT staff identified a pump emptying water from the secondary containment lagoons surrounding your storage tanks into MDOT's drainage system along US-131. This discharge constitutes an illicit discharge and connection.

The Federal Clean Water Act and Part 31, Water Resources Protection of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended and regulations promulgated pursuant to these statutes mandate that only clean storm water or potable water can be discharged to a system that discharges to the waters of the State. Your property could be discharging pollutants to MDOT's drainage system in violation of these laws and in violation of the Highways Obstructions and Encroachments Act, 1925 PA 368.

Please remove this illicit discharge and connection immediately. By March 31, 2006 you must provide documentation to this office describing what actions you have taken to resolve this matter. By copy of this letter we are notifying the Michigan Department of Environmental Quality, Schoolcraft Township, and Kalamazoo County Health and Human Services of this information.

Please contact Nicholaus VanWoert at 269-337-3936 if you have any questions.

Sincerely,

Mark S. Geib
Manager
Kalamazoo Transportation Service Center

MSG:NV:dae

COPY

5372 SOUTH 9TH STREET • KALAMAZOO, MICHIGAN 49009
www.michigan.gov • (269) 375-8900 Toll Free: (877) 320-6368

cc: Kalamazoo County Health and Human Services
Schoolcraft Township
Kalamazoo District Supervisor, MDEQ Water Division
Tetra Tech MPS, MDOT MS4 Consultant
Judy Ruszkowski, MDOT Storm Water Program Manager
Bobbi Welke, MDOT Southwest Region Engineer
Nicholaus VanWoert, MDOT Southwest Region Storm Water Representative

JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF TRANSPORTATION
BAY CITY TRANSPORTATION SERVICE CENTER

Kirk T. Steudle
~~GLORIA J. JEFF~~
DIRECTOR

June 27, 2006

Plaza Hotel
501 Saginaw Street
Bay City, Michigan 48708

Dear Property Owner:

The Michigan Department of Transportation (MDOT) is currently investigating its storm sewer system within the Bay City urbanized area. Information gathered during the course of this investigation indicates that a potential illicit discharge/connection is originating from your property and entering into MDOT's storm sewer system as evidenced by presence of chlorine.

The Federal Clean Water Act and Part 31, Water Resources Protection of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended and regulations promulgated pursuant to these statutes mandate that only clean storm water or potable water can be discharged to a system that discharges to the waters of the State. Your property could be discharging pollutants to MDOT's storm sewer system in violation of these laws and in violation of the Highways Obstructions and Encroachments Act, 1925 PA 368. Non-residential swimming pool water, if in fact that is the source of the discharge, must be dechlorinated and any filter backwash water must be treated before MDOT can issue a permit to allow this discharge. Please let me know what steps you plan to take to ensure that your system does not discharge to our storm sewer in violation of the public acts cited.

If you have any questions, please contact me at 989-671-1535 extension 305 or Cary Rouse, MDOT Bay Region Resource Specialist, at 989-754-0878 extension 244.

Sincerely,

Robert A. Ranck, Jr., P.E.
Manager
Bay City Transportation Service Center

RAR:CR:md
Cc: Valerie Sanglier, Tetra Tech (MDOT MS4 Consultant)
Judy Ruszkowski, MDOT Storm Water Program Manager
Cary Rouse, MDOT Bay Region Storm Water Coordinator

2590 EAST WILDER ROAD • BAY CITY, MICHIGAN 48706
www.michigan.gov • (989) 671-1555

JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF TRANSPORTATION
MARSHALL TRANSPORTATION SERVICE CENTER

KIRK T. STEUDLE
DIRECTOR

September 6, 2006

Mr. Brett Hummel
8304 Maple Grove Road
Nashville, Michigan 49073

Dear Mr. Hummel:

The Michigan Department of Transportation (MDOT) is currently performing construction activities adjacent to your property at 8304 Maple Grove Road in Maple Grove Township, Barry County. During these activities, construction staff noticed two corrugated plastic pipes entering into MDOT's drainage system. Additional information was gathered indicating that a wash machine drain is connected to these pipes. This constitutes an illicit discharge and connection.

The Federal Clean Water Act and the Water Resources Protection of the Natural Resources and Environmental Protection Act, Part 31, 1994 PA 451, as amended, and regulations promulgated pursuant to these statutes mandate that only clean storm water or potable water can be discharged to a system that discharges to the waters of the State. Your property could be discharging pollutants to MDOT's drainage system in violation of these laws and in violation of the Highways Obstructions and Encroachments Act, 1925 PA 368.

Please take steps to have the wash machine drain and any other illicit discharges rerouted out of MDOT's drainage system within 30 days of receipt of this letter. You must provide documentation to the Marshall Transportation Service Center (TSC) by **October 11, 2006**, describing what actions you have taken to resolve this matter. If you are unable to remove the encroachment by this date, you must provide information to the TSC by **October 4, 2006**, describing the specific steps and schedule by which you will remove the encroachment.

The Marshall TSC address is: MDOT – Marshall TSC
15300 West Michigan Avenue
Marshall, Michigan 49068

In addition, improvements to the intersection of M-66 and Maple Grove Road may have affected the drainage of the pipes in question. It shall be your responsibility to make the necessary adjustments to allow for the proper drainage of any legal discharges.

By copy of this letter we are notifying the Michigan Department of Environmental Quality, Maple Grove Township, and the Barry-Eaton District Health Department of this information.

15300 WEST MICHIGAN AVENUE • MARSHALL, MICHIGAN 49068
www.michigan.gov • Phone (269) 789-0592 • Toll-Free (877) 324-6368

Please contact Nicholaus VanWoert, MDOT Southwest Region Resource Specialist, at (269) 337-3936 if you have questions on the illicit discharge. Please contact Jon Kolbasa, MDOT Marshall Transportation Service Center Utility/Permit Engineer at (269) 789-0592 if you have questions on performing any construction activities within MDOT right of way.

Sincerely,

Brad Wieferich
Marshall TSC Manager

By Certified Mail

cc: Barry-Eaton District Health Department
Maple Grove Township
Grand Rapids District Supervisor, MDEQ Water Bureau

cc: Barry-Eaton District Health Department
Maple Grove Township
Grand Rapids District Supervisor, MDEQ Water Bureau

bc: Tetra Tech MPS, MDOT MS4 Consultant
Judy Ruszkowski, MDOT Storm Water Program Manager
Bobbi Welke, MDOT Southwest Region Engineer
Nicholaus VanWoert, MDOT Southwest Region Storm Water Representative
Jon Kolbasa, Marshall TSC Utilities and Permits Engineer

JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF TRANSPORTATION
LANSING

KIRK T. STEUDLE
DIRECTOR

METRO REGION OFFICE

October 10, 2006

Thomas Biasell,
Public Services Director
City of Farmington Hills
31555 W. Eleven Mile Road
Farmington Hills, MI 48336-1165

Dear Mr. Biasell:

RE: MDOT's IDEP Crossing 'e'; Outfall No. 63022-001-A000N
Illicit Discharge Farmington Auto Wash; MH 63022-001-C015N
HRC Job No. 20030263.20

Hubbell, Roth & Clark, Inc. is working on behalf of the Michigan Department of Transportation (MDOT), implementing their Illicit Discharge Elimination Plan (IDEP) required under their NPDES Storm Water Discharge Permit. We are currently investigating a MDOT storm sewer system within the City of Farmington Hills. Information gathered during the course of this investigation indicates an illicit discharge is originating from property adjacent to MDOT's right-of-way and entering into MDOT's storm sewer system.

On September 8, 2006, a soapy surface discharge was observed entering the MDOT right-of-way from the Farmington Auto Wash located on Grand River Avenue between Springbrook and Haynes. We have attached a sample location map along with several photos showing the discharge. MDOT is requesting that the City of Farmington Hills work with the property owner of the above mentioned business to eliminate this illicit discharge. Please provide documentation to this office, within the next 30-days, describing what actions you have taken to resolve this matter.

We are willing to meet with you and your staff to discuss this matter should you feel it is necessary.

18101 WEST NINE MILE ROAD • SOUTHFIELD, MICHIGAN 48075
www.michigan.gov • (248) 483-5100

Please contact the undersigned should you have any questions or require additional information.

Sincerely,

Randy McKinney, P.E.,
Metro Region Maintenance Engineer
248-483-5144

RM:dvd

Enclosures:
Sample Location Map
Laboratory Test Results

cc: MDEQ Water Bureau District Supervisor; Hae-Jin Yoon
MDOT Storm Water Program Manager; Judy Ruszkowski
Tetra Tech; Dan Christian
HRC; William Davis
File

MDOT Phase 2 Storm Water IDEP
Crossing "E" Grand River at Tuck
City of Farmington Hills

9-Y 04
WRD

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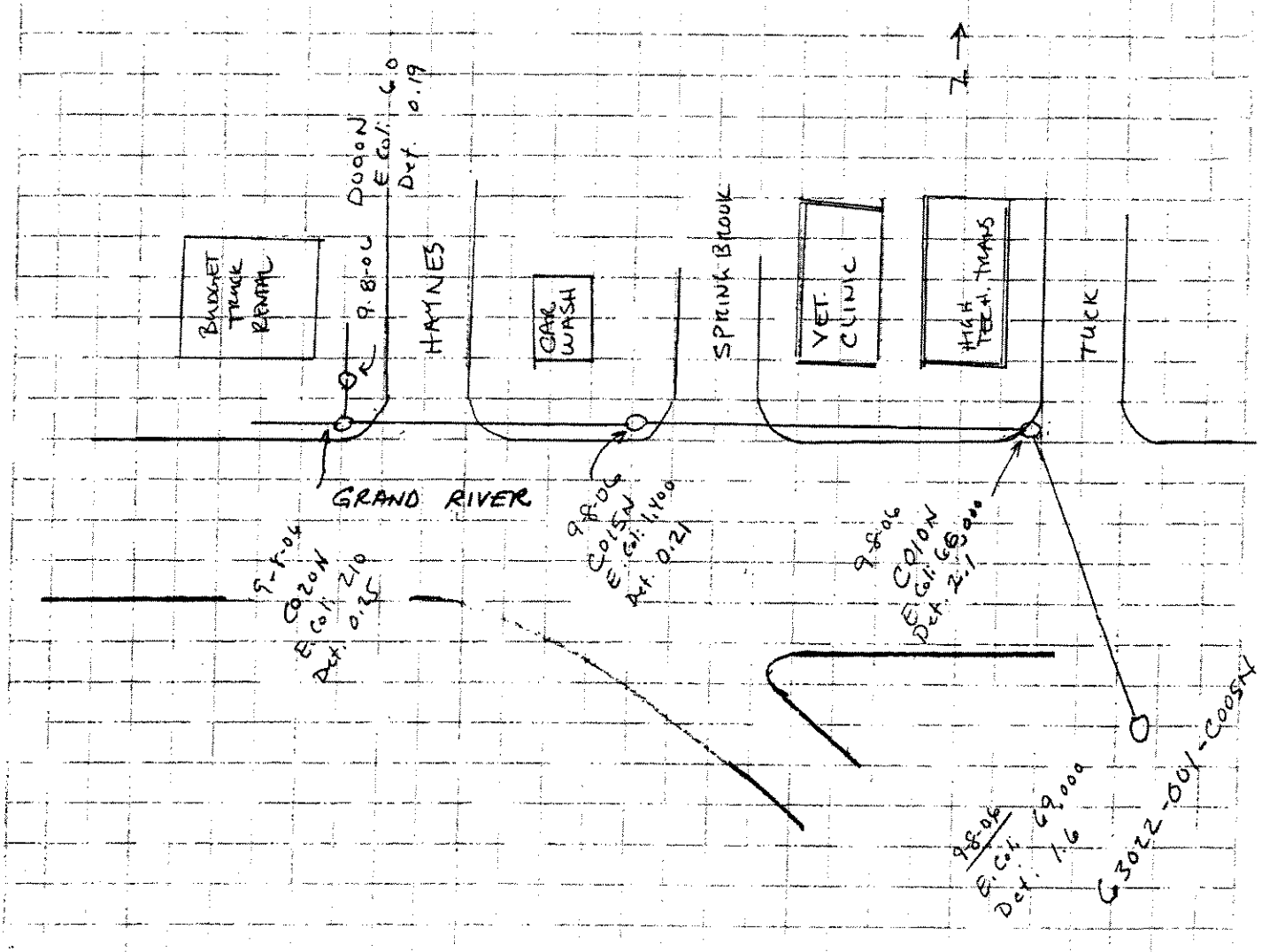

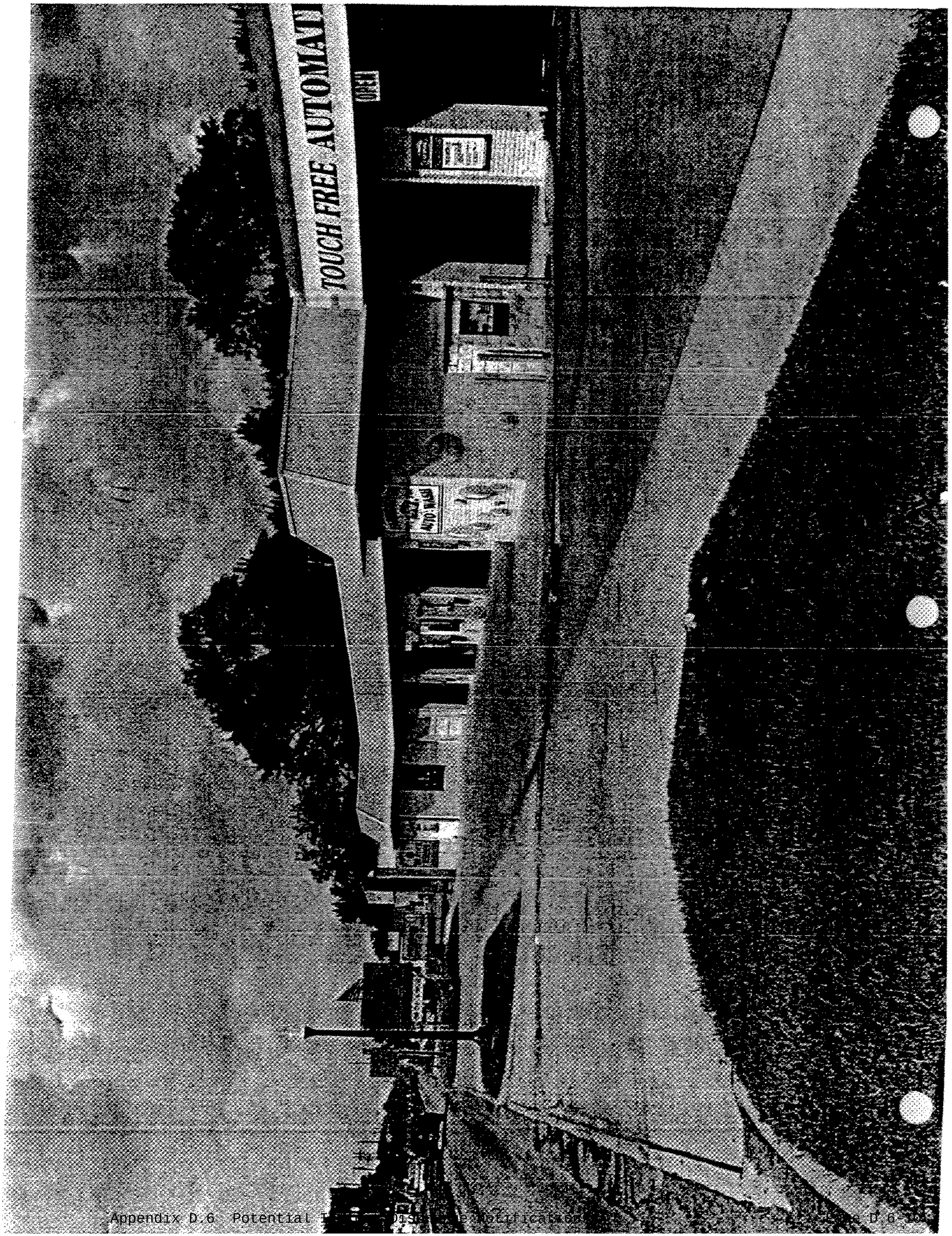
TOUCH FREE AUTOMAT

TOUCH FREE AUTOMATIC
OPEN
CAR WASH
INSTRUCTIONS

JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF TRANSPORTATION
LANSING

KIRK T. STEUDLE
DIRECTOR

METRO REGION OFFICE

October 10, 2006

Thomas Biasell,
Public Services Director
City of Farmington Hills
31555 W. Eleven Mile Road
Farmington Hills, MI 48336-1165

Dear Mr. Biasell:

RE: MDOT's IDEP Crossing 'e'; Outfall No. 63022-001-A000N
Potential Illicit Connection 30400 Block Grand River MH 63022-001-C010N
HRC Job No. 20030263.20

Hubbell, Roth & Clark, Inc. is working on behalf of the Michigan Department of Transportation (MDOT), implementing their Illicit Discharge Elimination Plan (IDEP) required under their NPDES Storm Water Discharge Permit. We are currently investigating a MDOT storm sewer system within the City of Farmington Hills. Information gathered during the course of this investigation indicates a possible illicit connection is originating from property adjacent to MDOT's right-of-way and entering into MDOT's storm sewer system.

On September 8, 2006, dry weather samples were collected and found to have high levels of bacteria and detergents. This appears isolated to the 30400 block of Grand River Avenue between Tuck and Springbrook. There are two businesses located on this block:

1. HI-Tech Transmission
   30400 Grand River
   (248)473-5800

2. AG Black Veterinary Hospital
   30470 Grand River
   (248) 478-5400

We have attached a sample location map and test results. MDOT is requesting that the City of Farmington Hills work with the property owner's of the above mentioned businesses to verify the existence of an illicit connection(s) via dye testing and eliminate all confirmed illicit connections. Please provide documentation to this office, within the next 30-days, describing what actions you have taken to resolve this matter.

We are willing to meet with you and your staff to discuss this matter should you feel it is necessary. Please contact the undersigned should you have any questions or require additional information.

Sincerely,

Randy McKinney, P.E.,
Metro Region Maintenance Engineer
248-483-5144

RM:dvd

Enclosures:
Sample Location Map
Laboratory Test Results

cc: MDEQ Water Bureau District Supervisor; Hae-Jin Yoon
MDOT Storm Water Program Manager; Judy Ruszkowski
Tetra Tech; Dan Christian
HRC; William Davis
File

MDOT Phase 2 Storm Water IDEP
Crossing "e" Grand River at Tuck
City of Farmington Hills

9-Y 04
WRD

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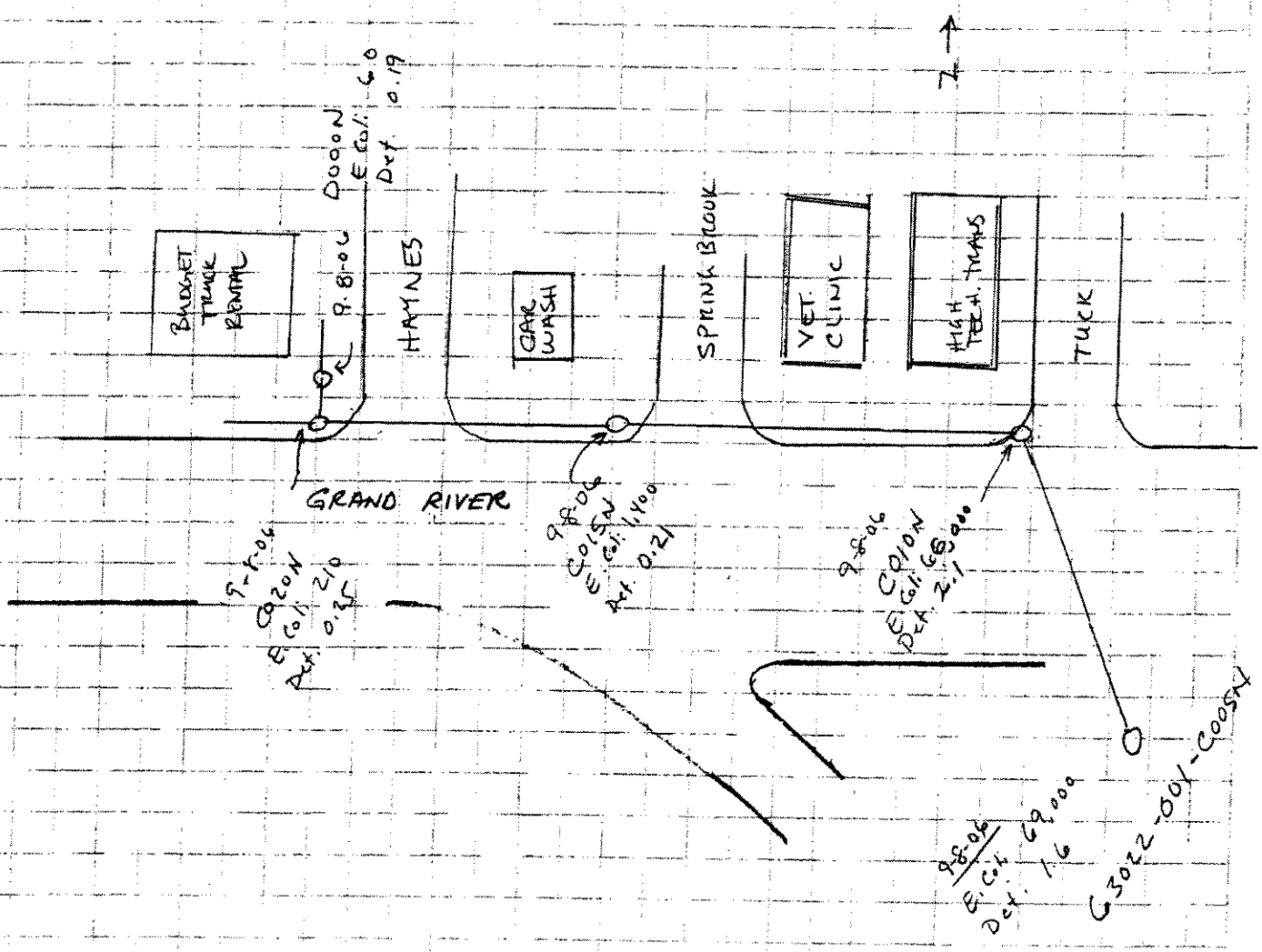

RTI LABORATORIES, INC.

31628 Glendale St.
Livonia, Michigan 48150
TEL: 734.422.8000
FAX: 734.422.5342
Website: www.rtilab.com

Analytical Report

(consolidated)

WO#: 0609178

Date Reported: 9/11/2006

CLIENT: Hubbell, Roth & Clark, Inc

Collection Date: 9/8/2006 1:15:00 PM

Project: MDOT Ph II - 20030263

Lab ID: 0609178-001

Matrix: WATER

Client Sample ID 63022-001-C050N C005N

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
E. COLI				E1103.1		Analyst: JS5
Escherichia Coli	69,000	10		CFU/100ml	10	9/8/2006 3:00:00 PM
METHYLENE BLUE ACTIVE SUBSTANCES				E425.1		Analyst: JE
MBAS	1.6	0.25	H	mg/L	5	9/11/2006 8:30:00 AM

Qualifiers:

- */X Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- M Manual Integration used to determine area response
- RL Reporting Detection Limit

RTI LABORATORIES, INC.

31628 Glendale St.
Livonia, Michigan 48150
TEL: 734.422.8000
FAX: 734.422.5342
Website: www.rtilab.com

Analytical Report

(consolidated)

WO#: 0609178

Date Reported: 9/11/2006

CLIENT: Hubbell, Roth & Clark, Inc
Collection Date: 9/8/2006 1:20:00 PM
Project: MDOT Ph II - 20030263
Lab ID: 0609178-002
Matrix: WATER
Client Sample ID 63022-001-C010N

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
E. COLI				**E1103.1**		Analyst: **JS5**
Escherichia Coli	66,000	10		CFU/100ml	10	9/8/2006 3:00:00 PM
METHYLENE BLUE ACTIVE SUBSTANCES				**E425.1**		Analyst: **JE**
MBAS	2.1	0.25	H	mg/L	5	9/11/2006 8:30:00 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

RTI LABORATORIES, INC.

31628 Glendale St.
Livonia, Michigan 48150
TEL: 734.422.8000
FAX: 734.422.5342
Website: www.rtilab.com

Analytical Report

(consolidated)

WO#: 0609178

Date Reported: 9/11/2006

CLIENT: Hubbell, Roth & Clark, Inc

Project: MDOT Ph II - 20030263

Lab ID: 0609178-003

Client Sample ID 63022-001-C015N

Collection Date: 9/8/2006 1:30:00 PM

Matrix: WATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
E. COLI				**E1103.1**		Analyst: **JS5**
Escherichia Coli	1,400	10		CFU/100ml	10	9/8/2006 3:00:00 PM
METHYLENE BLUE ACTIVE SUBSTANCES				**E425.1**		Analyst: **JE**
MBAS	0.21	0.050	H	mg/L	1	9/11/2006 8:30:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

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Livonia, Michigan 48150
TEL: 734.422.8000
FAX: 734.422.5342
Website: www.rtilab.com

Analytical Report

(consolidated)

WO#: 0609178

Date Reported: 9/11/2006

CLIENT: Hubbell, Roth & Clark, Inc
Collection Date: 9/8/2006 2:00:00 PM
Project: MDOT Ph II - 20030263
Lab ID: 0609178-004
Matrix: WATER
Client Sample ID 63022-001-C020N

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
E. COLI				**E1103.1**		Analyst: **JS5**
Escherichia Coli	210	10		CFU/100ml	10	9/8/2006 3:00:00 PM
METHYLENE BLUE ACTIVE SUBSTANCES				**E425.1**		Analyst: **JE**
MBAS	0.25	0.050	H	mg/L	1	9/11/2006 8:30:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

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31628 Glendale St.
Livonia, Michigan 48150
TEL: 734.422.8000
FAX: 734.422.5342
Website: www.rtilab.com

Analytical Report

(consolidated)

WO#: 0609178

Date Reported: 9/11/2006

CLIENT: Hubbell, Roth & Clark, Inc
Project: MDOT Ph II - 20030263
Lab ID: 0609178-005
Client Sample ID 63022-001-D000N

Collection Date: 9/8/2006 2:10:00 PM

Matrix: WATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
E. COLI				**E1103.1**		Analyst: **JS5**
Escherichia Coli	60	10		CFU/100ml	10	9/8/2006 3:00:00 PM
METHYLENE BLUE ACTIVE SUBSTANCES				**E425.1**		Analyst: **JE**
MBAS	0.19	0.050	H	mg/L	1	9/11/2006 8:30:00 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

BOARD OF COUNTY ROAD COMMISSIONERS
OF MACOMB COUNTY
Administration Building
117 S. Groesbeck Highway
Mount Clemens, Michigan 48043
(586) 463-8671

December 18, 2006

Mr. Randy McKinney, P.E.
Michigan Department of Transportation
18101 West Nine Mile Road
Southfield, MI 48075

RE: MDOT's IDEP Crossing 51 Outfall #50021-005-A000N
Potential Illicit Connection M-59 & Mound Road MH 50021-005-7015N&7040N
HRC Job #20030263.20

Dear Mr. McKinney:

The Road Commission of Macomb County has been involved in a thorough investigation of the above-references IDEP Crossing. Enclosed please find several letters from various agencies indicating no illicit connections found at the Classic Shine Car Wash.

A full investigation was facilitated by the Road Commission of Macomb County, and we believe no further action is warranted at this time.

We appreciate the opportunity to continue our partnership with MDOT on this IDEP program. If you have any questions regarding this issue, please feel free to contact me.

Sincerely,

ROAD COMMISSION OF MACOMB COUNTY

Robert P. Hoepfner, P.E.
County Highway Engineer

RH/sf

enclosures

cc: H. Yoon, MDEQ; A. Marrocco, MCOPW;
T. Schoenherr, Shelby Twp DPW; J. Ruszkowski, MDOT;
D. Christian, TetraTech; W. Davis, HRC;
K. Andre, Classic Shine Car Wash

ECT
Environmental Consulting & Technology, Inc.

December 14, 2006

Mr. Joe Pacella
Macomb County Road Commission
117 S. Groesbeck Hwy
Mt. Clemens, MI 48043

RE: Dye Test Findings - 45275 Mound Rd. Utica, Michigan

On behalf of Kevin Andre owner of the Classic Shine Car Wash, Environmental Consulting & Technology, Inc. (ECT) is responding to your letter dated November 21, 2006 regarding the potential illicit connection of the car wash to the Road Commission's storm sewer system.

Eventhough, the concentrations of surfactants found by MDOT's contractor are commonly found in watercourses and storm drains throughout southeast Michigan, Mr. Andre had the wash dye tested to conclusively determine that it is properly connected to the sanitary sewer system.

The results of the dye test conducted by the MCHD indicate that the car wash is indeed properly discharging to the sanitary sewer system (see attached report) and not the storm sewer. Mr. Andre appreciates the County's assistance in resolving this matter.

If you should have any questions regarding this information please contact Mr. Andre at 248-342-6478 or myself at 586-465-2583.

Sincerely,
ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Annette DeMaria
Staff Engineer

Cc: Kevin Andre, Classic Shine Car Wash

44[illegible] Groesbeck Hwy
Clinton Township, MI
48036

(586)
465-2583

FAX (586)
465-4672

Inspectors: SM/GS

Investigation No.: 06-344
Investigation Date: 11/21/06

MACOMB COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH SERVICES DIVISION

S.W.I.M. SITE INVESTIGATION REPORT FOR ~~CENTER LINE & WARREN~~ FACILITIES

Facility Name: Classic Shine Auto Wash Phone No.:

Facility Address: 45275 Mound Rd, Shelby

Facility Type: ☐ Industrial ☒ Commercial ☐ Institution

Property Owner: Kevin Andre Phone No.: 248-342-6478

Property Owner Address: 856 Majestic, Rochester Hills, MI 48306

Person Interviewed: Kevin Andre

Standard Industrial Classification Code (SIC):

☐ Basement ☐ Crawl Space ☒ Slab Sump Pump? ☐ Yes ☐ No ☒ Not Applicable

Sump Pump Discharge: ☐ Connected to Sanitary Lead Inside Building ☐ Other

☐ Ground Surface ☐ Storm Drain – Location

DYE APPLICATION INFORMATION

Please provide specific information for the categories "Fixture Location" (ex: Northwest corner of 2nd Floor) and "Location where dye was observed" (ex: discharging from South pipe in Manhole No. 0).

Application No. 1 Time Dye Applied: 9:07 Time Dye Observed: 9:12

Dye applied to: ☒ Toilet ☐ Sink ☐ Laundry Tub ☐ Floor Drain ☐ Other:

No. of Fixtures Per Lead: 7 /Lead Fixture Location: Bathroom in office - South end of Bldg FT/15 SFD

Color: ☒ Red ☐ Green ☐ Other Dye observed At: ☐ Storm ☒ Sanitary ☐ Not Found

Location where dye was observed: Sanitary sewer on west side of building near automatic car wash drive-in.

Application No. 2 Time Dye Applied: 9:13 Time Dye Observed: 9:53

Dye applied to: ☐ Toilet ☐ Sink ☐ Laundry Tub ☐ Floor Drain ☒ Other: Pit/Basin in car wash bay

No. of Fixtures Per Lead: 9 /Lead Fixture Location: Auto wash - South end of building

Color: ☐ Red ☒ Green ☐ Other Dye observed At: ☐ Storm ☒ Sanitary ☐ Not Found

Location where dye was observed: Sanitary - on west side of building near auto - in drive.

Application No. 3 Time Dye Applied: Time Dye Observed:

Dye applied to: ☐ Toilet ☐ Sink ☐ Laundry Tub ☐ Floor Drain ☐ Other:

No. of Fixtures Per Lead: /Lead Fixture Location:

Color: ☐ Red ☐ Green ☐ Other Dye observed At: ☐ Storm ☐ Sanitary ☐ Not Found

Location where dye was observed:

Inspectors: _____

Investigation No.: _____
Investigation Date: 11/21/06

CENTER LINE & WARREN FACILITY INVESTIGATION REPORT

FACILITY NAME: _____

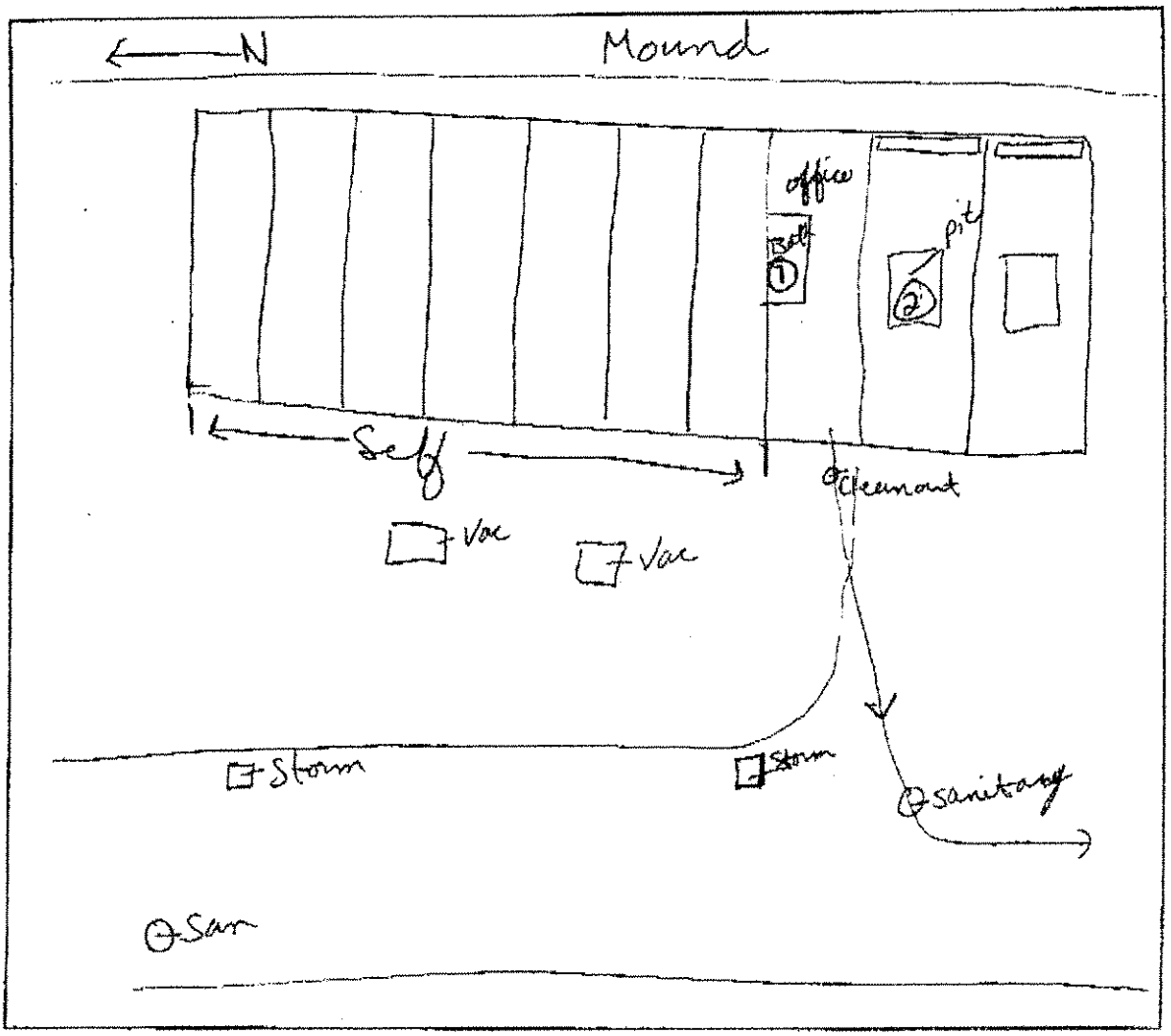
Investigation completed with the assistance of: ☐ ~~Warren~~ ☐ ~~Center Line~~ ☐ ~~None~~
MCPWO

RESULTS/ACTION REQUIRED

☐ IDEP Correction *Required*
☒ IDEP Correction *Not Required*
☐ Sanitary Connection to Storm
☐ Sump Connected to Sanitary

Comments: Sanitary manhole had heavy sediment accumulation.

Site Drawing



HEALTH DEPARTMENT
Mount Clemens Health Center

43525 Elizabeth Road
Mount Clemens, Michigan 48043
586-469-5235 FAX 586-469-5885
macombcountymi.gov/publichealth

Thomas J. Kalkofen
Director/Health Officer

Kevin P. Lokar, M.D.
Medical Director

November 28, 2006

Robert Hoepfner, P.E.
Road Commission of Macomb County
Administration Building
117 S. Groesbeck Highway
Mt. Clemens, MI 48043

Dear Mr. Hoepfner:

SUBJECT: CLASSIC SHINE AUTO WASH - 45275 MOUND ROAD

On November 21, 2006 the Macomb County Health Department, at the request of the Macomb County Public Works Office, inspected and dye tested the facility at the above address to determine if the sanitary waste lines are connected to the appropriate sewer systems.

During our investigation, dye was introduced to the bathroom plumbing and the drains in the automatic wash bay. The investigation revealed that the waste lines are connected to the sanitary sewer located in the driveway on the west side of the building. Additionally, we observed a large quantity of sediment in the sanitary sewer. The owner of the property was advised to have the sediment removed from the manhole to prevent a potential sewage back-up.

If you have any questions regarding this matter, please contact me at (586) 469-5236.

Sincerely,

Cole Shoemaker, M.P.H., R.S.
Supervisor
Environmental Health Services Division

Attachments

cc: Lynne Seymore, MCPWO
Kevin Andre, Classic Shine Acquistions LLC
Ted Schoenherr, Shelby Township DPW
J. Pacella, Road Commission of Macomb County
H. Yoon, MDEQ
R. McKinney, MDOT

Inspectors: SM/GS

Investigation No.: 06-344
Investigation Date: 11/21/06

MACOMB COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH SERVICES DIVISION

S.W.I.M. SITE INVESTIGATION REPORT FOR ~~CENTER LINE & WARREN~~ FACILITIES

Facility Name: Classic Shine Auto Wash Phone No.:

Facility Address: 45275 Mound Rd, Shelby

Facility Type: ☐ Industrial ☒ Commercial ☐ Institution

Property Owner: Kevin Andre Phone No.: 248-342-6478

Property Owner Address: 856 Majestic, Rochester Hills, MI 48306

Person Interviewed: Kevin Andre Standard Industrial Classification Code (SIC):

☐ Basement ☐ Crawl Space ☒ Slab Sump Pump? ☐ Yes ☐ No ☒ Not Applicable

Sump Pump Discharge: ☐ Connected to Sanitary Lead Inside Building ☐ Other
☐ Ground Surface ☐ Storm Drain – Location

DYE APPLICATION INFORMATION

Please provide specific information for the categories "Fixture Location" (ex: Northwest corner of 2nd Floor) and "Location where dye was observed" (ex: discharging from South pipe in Manhole No. 0).

Application No. 1 Time Dye Applied: 9:07 Time Dye Observed: 9:12

Dye applied to: ☒ Toilet ☐ Sink ☐ Laundry Tub ☐ Floor Drain ☐ Other:

No. of Fixtures Per Lead: 7 /Lead Fixture Location: Bathroom in office - South end of Bldg IT/IS SFD

Color: ☒ Red ☐ Green ☐ Other Dye observed At: ☐ Storm ☒ Sanitary ☐ Not Found

Location where dye was observed: Sanitary sewer on west side of building near automatic car wash drive-in.

Application No. 2 Time Dye Applied: 9:13 Time Dye Observed: 9:53

Dye applied to: ☐ Toilet ☐ Sink ☐ Laundry Tub ☐ Floor Drain ☒ Other: Pit/Basin in car wash bay

No. of Fixtures Per Lead: 9 /Lead Fixture Location: Auto wash - South end of building

Color: ☐ Red ☒ Green ☐ Other Dye observed At: ☐ Storm ☒ Sanitary ☐ Not Found

Location where dye was observed: Sanitary on west side of building near auto-in drive.

Application No. 3 Time Dye Applied: Time Dye Observed:

Dye applied to: ☐ Toilet ☐ Sink ☐ Laundry Tub ☐ Floor Drain ☐ Other:

No. of Fixtures Per Lead: /Lead Fixture Location:

Color: ☐ Red ☐ Green ☐ Other Dye observed At: ☐ Storm ☐ Sanitary ☐ Not Found

Location where dye was observed:

Inspectors: _____

Investigation No.: _____

Investigation Date: 11/21/06

CENTER LINE & WARREN FACILITY INVESTIGATION REPORT

FACILITY NAME: _____

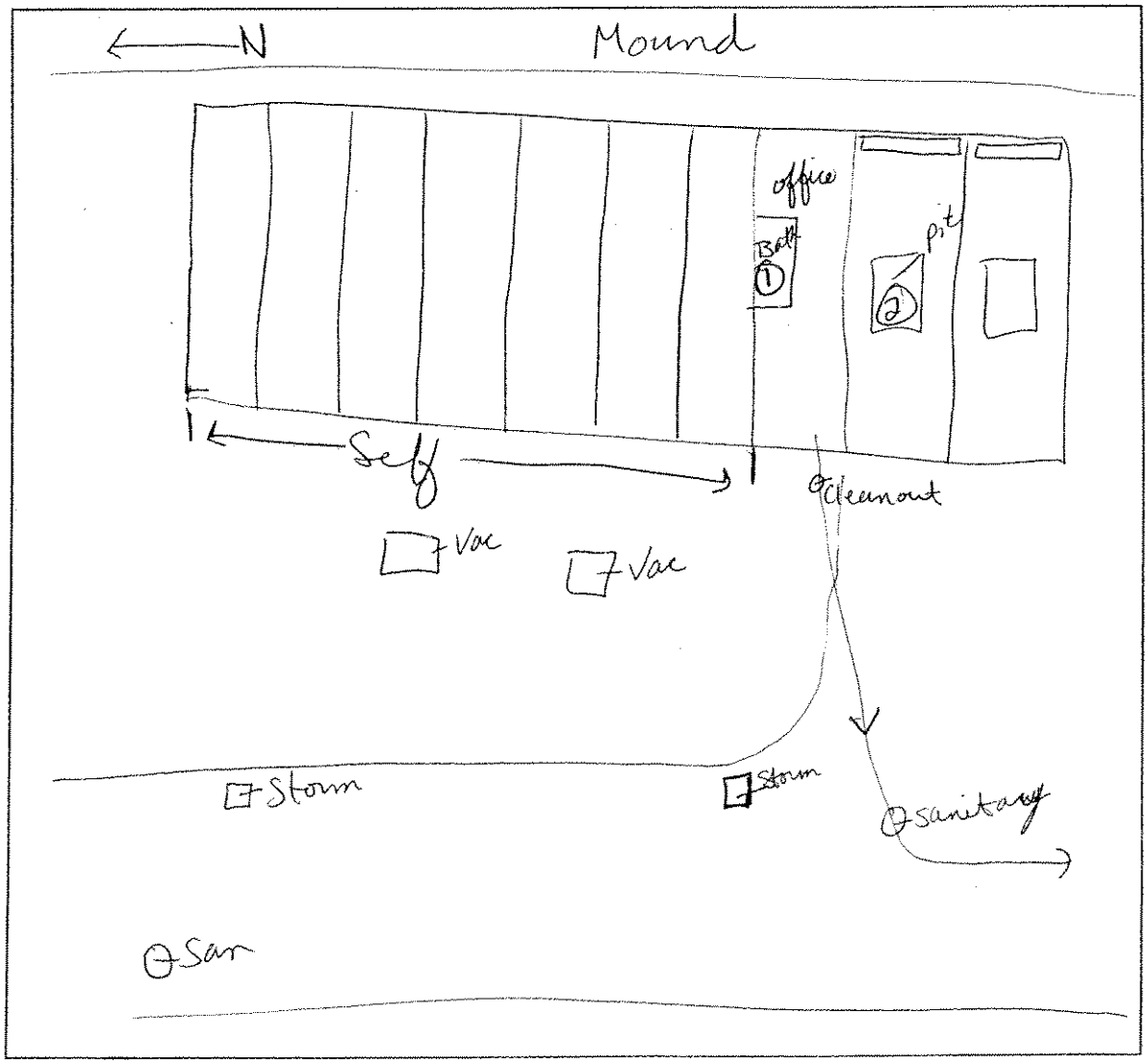
Investigation completed with the assistance of: ☐ ~~Warren~~ ☐ ~~Center Line~~ ☐ ~~None~~ MCPWO

RESULTS/ACTION REQUIRED

☐ IDEP Correction *Required*
☒ IDEP Correction *Not Required*
☐ Sanitary Connection to Storm
☐ Sump Connected to Sanitary

Comments: Sanitary manhole had heavy sediment accumulation.

Site Drawing



Charter Township of Shelby

Theodore P. Schoenherr, Director
Department of Public Works, Water and Sewer

6333 23 Mile Road
Shelby Township, MI 48316-4405

Phone: (586) 726-7272
Fax: (586) 726-7221
E-mail: dpw@shelbytwp.org

November 2, 2006

Mr. Bob Hoepfner
County Highway Engineer
Macomb County Road Commission
117 S. Groesbeck Highway
Mount Clemens, MI 48043-2183

RE: Potential Illicit Connection at Classic Shine Auto Wash, 45275 Mound Road, Shelby Township

586-726-8203

Dear Bob:

Please be advised that we have inspected the above-referenced site, and to the best of our knowledge, the wash bay runoff outlets into the Shelby Township sanitary sewer system, as per design. I have no reason to believe otherwise, as the auto wash is paying a substantial water and sewer bill for this service.

If I can be of further assistance, please to not hesitate to contact me.

Very truly yours,

CHARTER TOWNSHIP OF SHELBY

Ted Schoenherr

Theodore P. Schoenherr
Director of Public Works

TPS/pac

Enclosure

JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF TRANSPORTATION
LANSING

KIRK T. STEUDLE
DIRECTOR

METRO REGION OFFICE

October 10, 2006

Bob Hoepfner,
County Highway Engineer
Macomb County Road Commission
117 S. Groesbeck Highway
Mount Clemens, MI 48043-2183

Was been mailed out

Dear Mr. Hoepfner:

RE: MDOT's IDEP Crossing 51 Outfall No. 50021-005-A000N
Potential Illicit Connection M-59 & Mound Road MH 50021-005-J015N & J040N
HRC Job No. 20030263.20

Hubbell, Roth & Clark, Inc. is working on behalf of the Michigan Department of Transportation (MDOT), implementing their Illicit Discharge Elimination Plan (IDEP) required under their NPDES Storm Water Discharge Permit. We are currently investigating a MDOT storm sewer system within Macomb County. Information gathered during the course of this investigation indicates a potential illicit connection is originating from the Mound Road storm sewer system and entering into MDOT's storm sewer system. The Auto Wash at 45275 Mound Road, located just north of M-59 in Shelby Township, is a potential source of the detergents found in dry weather samples. We have attached a sample location map and test results.

MDOT is requesting that the Macomb County Road Commission investigate the source of the detergents and eliminate all confirmed illicit connections. Please provide documentation to this office, within the next 30-days, describing what actions you have taken to resolve this matter.

We are willing to meet with you and your staff to discuss this matter should you feel it is necessary.

18101 WEST NINE MILE ROAD • SOUTHFIELD, MICHIGAN 48075
www.michigan.gov • (248) 483-5100

Please contact the undersigned should you have any questions or require additional information.

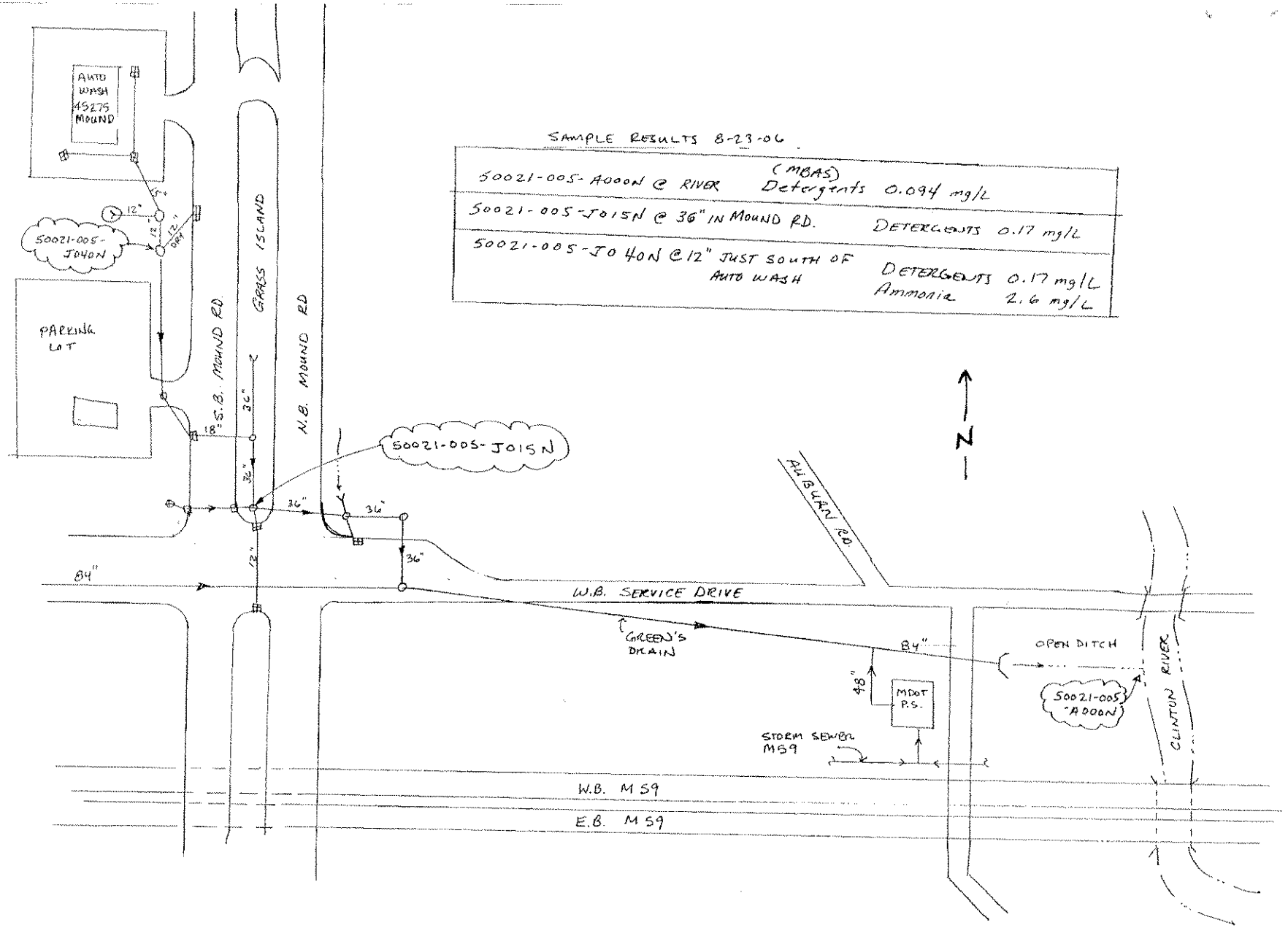
Sincerely,

Randy McKinney, P.E.,
Metro Region Maintenance Engineer
248-483-5144

RM:dvd

Enclosures:
Sample Location Map
Laboratory Test Results

cc: MDEQ Water Bureau District Supervisor; Hae-Jin Yoon
Macomb County Public Works Commissioner; Anthony Marrocco
Shelby Twp. Department of Public Works; Theodore Schoenherr
MDOT Storm Water Program Manager; Judy Ruszkowski
Tetra Tech; Dan Christian
HRC; William Davis
File


AUTO WASH
49275 MOUND
PARKING LOT
50021-005-J040N
S.B. MOUND RD.
GRASS ISLAND
N.B. MOUND RD
50021-005-J015N
SAMPLE RESULTS 8-23-06
50021-005-A000N @ RIVER (MBAS) Detergents 0.094 mg/L
50021-005-J015N @ 36" IN MOUND RD. DETERGENTS 0.17 mg/L
50021-005-J040N @ 12" JUST SOUTH OF AUTO WASH DETERGENTS 0.17 mg/L
Ammonia 2.6 mg/L
N
AU GRAVEL RD
84"
W.B. SERVICE DRIVE
GREEN'S DRAIN
84"
OPEN DITCH
48"
MDOT P.S.
50021-005 "A000N"
CLINTON RIVER
STORM SEWER M59
W.B. M 59
E.B. M 59

#51

RTI LABORATORIES, INC.

31628 Glendale St.
Livonia, Michigan 48150
TEL: 734.422.8000
FAX: 734.422.5342
Website: www.rtilab.com

Analytical Report

(consolidated)

WO#: 0608700

Date Reported: 8/29/2006

CLIENT: Hubbell, Roth & Clark, Inc
Project: MDOT IDEP - 20030263.20
Lab ID: 0608700-001
Client Sample ID 50021-005-A000N

Collection Date: 8/23/2006 11:30:00 AM
Matrix: WATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS				**E300.0**		Analyst: **MW**
Fluoride	0.13	0.010		mg/L	1	8/28/2006 11:03:00 AM
HARDNESS				**A2340B**		Analyst: **AB2**
Total Hardness (As CaCo3)	390	20		mg/L CaCO3	20	8/27/2006 11:32:28 AM
E. COLI				**E1103.1**		Analyst: **JS5**
Escherichia Coli	220	10		CFU/100ml	10	8/23/2006 3:00:00 PM
AMMONIA				**E350.3**		Analyst: **PG**
Nitrogen,A mmonia	ND	0.10		mg/L	1	8/24/2006 11:00:00 AM
METHYLENE BLUE ACTIVE SUBSTANCES				**E425.1**		Analyst: **JE**
MBAS	0.094	0.050		mg/L	1	8/24/2006 7:45:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

#51

RTI LABORATORIES, INC.

31628 Glendale St.
Livonia, Michigan 48150
TEL: 734.422.8000
FAX: 734.422.5342
Website: www.rtilab.com

Analytical Report

(consolidated)

WO#: 0608700

Date Reported: 8/29/2006

CLIENT: Hubbell, Roth & Clark, Inc
Project: MDOT IDEP - 20030263.20
Lab ID: 0608700-002
Client Sample ID 50021-005-J015N

Collection Date: 8/23/2006 10:45:00 AM
Matrix: WATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS				**E300.0**		Analyst: **MW**
Fluoride	0.18	0.010		mg/L	1	8/28/2006 11:03:00 AM
HARDNESS				**A2340B**		Analyst: **AB2**
Total Hardness (As CaCo3)	630	20		mg/L CaCO3	20	8/27/2006 11:34:55 AM
E. COLI				**E1103.1**		Analyst: **JS5**
Escherichia Coli	100	10		CFU/100ml	10	8/23/2006 3:00:00 PM
AMMONIA				**E350.3**		Analyst: **PG**
Nitrogen,A mmonia	0.64	0.10		mg/L	1	8/24/2006 11:00:00 AM
METHYLENE BLUE ACTIVE SUBSTANCES				**E425.1**		Analyst: **JE**
MBAS	0.17	0.050		mg/L	1	8/24/2006 7:45:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

#51

RTI LABORATORIES, INC.

31628 Glendale St.
Livonia, Michigan 48150
TEL: 734.422.8000
FAX: 734.422.5342
Website: www.rtilab.com

Analytical Report

(consolidated)

WO#: **0608700**

Date Reported: **8/29/2006**

CLIENT: Hubbell, Roth & Clark, Inc
Project: MDOT IDEP - 20030263.20
Lab ID: 0608700-003
Client Sample ID 50021-005-J040N

Collection Date: 8/23/2006 11:15:00 AM
Matrix: WATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
INORGANIC ANIONS				**E300.0**		Analyst: **MW**
Fluoride	0.17	0.010		mg/L	1	8/28/2006 11:03:00 AM
HARDNESS				**A2340B**		Analyst: **AB2**
Total Hardness (As CaCo3)	760	20		mg/L CaCO3	20	8/27/2006 11:37:23 AM
E. COLI				**E1103.1**		Analyst: **JS5**
Escherichia Coli	ND	1.0		CFU/100ml	1	8/23/2006 3:00:00 PM
AMMONIA				**E350.3**		Analyst: **PG**
Nitrogen,A mmonia	2.6	0.10		mg/L	1	8/24/2006 11:00:00 AM
METHYLENE BLUE ACTIVE SUBSTANCES				**E425.1**		Analyst: **JE**
MBAS	0.17	0.050		mg/L	1	8/24/2006 7:45:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Appendix E

Post Construction Storm Water Management

1. List of Post-Construction Storm Water Best Management Practices
   (Pages E.1-1 to E.1-3)

Appendix E.1 List of Post-Construction Storm Water Best Management Practices

Control Section	Job Number	County	Route	Job Description	Impact Issues	BMP/Mitigation	Recommended Maintenance
3033		Allegan	US-31, Median, South of Washington Ave. in Holland	Detention Basin			
4031	32335	Alpena	US-23	Detention Basin			
11012	34500	Berrien	US-131, St. Joe River	Detention pond in Ramp			
11016		Berrien	I-94, over St. Joe River - SE quadrant	Detention Pond			
11016	38208	Berrien	I-94 at Napier Ave.	Detention Basin			Berrien County Drain
11018	38094	Berrien	I-94 @ Mill Race Creek	Drop Structure			
11051		Berrien	Old US-33, Woodlawn and Church Street	Detention Basin			MDOT Maintenance
11054	99282	Berrien	M-63 - NE quadrant of Maple Lane	Detention Basin at Lake Michigan			
11056		Berrien	US-31, Station 354, Niles-Buchanan Road	Detention Basin			
11056		Berrien	US-31, Station 507, NB	Detention Basin			
11056		Berrien	US-31, Station 539, NB	Detention Basin			
11056		Berrien	US-31, Station 616, SB	Detention Basin			Private Property
11056		Berrien	US-31, Station 740, Lake Chapin Rd.	Detention Basin			
11056		Berrien	US- 31, Station 753, NB, South side of Lake Chapin	Detention Basin			
11056		Berrien	US-31, Station 767, NB, North side of Lake Chapin	Detention Basin			
11056		Berrien	US-31, Station 780, NB, South of Snow Rd.	Detention Basin			
11056		Berrien	US-31, Station 789, NB, Snow Rd.	Detention Basin			
11056		Berrien	US-31, Station 862, NB, North of Shawnee Rd.	Two Detention Basins			
11057	29512, 34511	Berrien	US-31 NB Lemon Creek Tributary, Walton and Maths Rd.	Detention/ Sedimentation			
11112	34511	Berrien	US-31 @ Old US-31 (S08 of 11112)	Detention Pond			
13031	99289	Calhoun	M-66 @ B Drive, Battle Creek	Walmart Detention Basin			
13032	39654	Calhoun	M-66 @ Pennifield	Co. Drain to Infiltration Basin			
15071	45002	Charlevoix	M-75, Boyne Industrial Park	Infiltration Trench			
15091	32322	Charlevoix	US-131, BR	Retention Basin, 2 cell			
18032	53307	Clare	US-131BR	Harrison Infiltration System			
23062	12271	Eaton	I-69	Detention Basin			
25032	33289	Genesee	I-75/ US-23 Parker Drive	Stilling Basin			

Appendix E.1 List of Post-Construction Storm Water Best Management Practices

Control Section	Job Number	County	Route	Job Description	Impact Issues	BMP/Mitigation	Recommended Maintenance
28012		Grand Traverse	US-31, M-37, Chums Corner	Two cell Detention Basin			
28051	37693	Grand Traverse	US-31/ M-37	Detention Basin			
30062		Hilldale	US-12, Jonesville	Retention Basin			
33084		Ingham	I-96	Detention Basin			
37022		Isabella	M-20,US-127, NE quadrant of Ramp	Pump Station and Retention			
39011		Kalamazoo	US-131, Station 163, SB	Detention Basin			Private Property
39022		Kalamazoo	I-94 WB at Galesburg Rest area	Detention Basin			MDOT Maintenance
39024	54230	Kalamazoo	I-94 at Sprinkle Road	Detention Basins			
39032	28617	Kalamazoo	M-43	Detention Basin			
39081		Kalamazoo	M-43 at 8th St.	Two Detention Basins			
39082		Kalamazoo	M-43	Infiltration Basin			
41031	30147	Kent	M-37, Plaster Creek Tributary, NW of 44th Street	Detention Basin			
41031	34694	Kent	M-37 @ 44th to 60th	Retention Basin			
41051		Kent	M-44	Detention Basin			
41057		Kent	M-44	County Drain - Knapps Drain - Infiltration			County will maintain
41131	51903	Kent	US-131	Bridge Reconstruction over Plaster Creek	Scupper Drain Runoff	Bank stablization to correct gully erosion	
43555		Lake	M-37 @ Lake Street, Baldwin	Vortech, outlet weir			
45012		LeeLanau	M-22, Glenn Arbor Pump station	Retention Basin			City jurisdiction
47014	34519	Livingston	M-59	Ramp Reconstruction, Widen Approaches	Extensive groundwater contamination at all 4 quadrants	Minimize utility cuts, Dewatering, non-porous backfill	
50022	28460	Macomb	M-59 @ Elizabeth Rd. / I-94	Detention Basin			
50022	5675	Macomb	M-59	Detention Basin			
50022	28460	Macomb	M-59, Snover Road	Infiltration Basin			
50023		Macomb	M-59,	3 Detention Basins, First flush in Median			
50062		Macomb	I-696, Lake Street	Oli/gas separator			
51011	74005	Manistee	US-31, Manistee	Vortech			MDOT Maintain
53022	44413	Mason	US-10	Detention and Leachate Basin			
59045	32341	Montcalm	M-46 East of Edmore	2 ponds			
63012		Oakland	I-696, River Rouge	Pump Station			
63022	51880	Oakland	I-96 @ Beck Road	Pond			
63081		Oakland	US-10 and Northwestern Hwy., McKinley Drain	Detention Basin			
63101	9219	Oakland	I-696, Minnow Pond Drain	Swale retrofit demostration project			

Appendix E.1 List of Post-Construction Storm Water Best Management Practices

Control Section	Job Number	County	Route	Job Description	Impact Issues	BMP/Mitigation	Recommended Maintenance
63102	22140	Oakland	US-10 and Northwestern Hwy.	Detention Basin with Pump Station discaharge into Rouge River			
63112		Oakland	M-24, Lake Orion	Retention Study by MSU			
67022	38464	Osceola	US-10 in Evart	Detention Basin			
69000		Otsego	Gaylord	Detention Basin			
70041		Ottawa	M-45, west of Sand Creek	Retention Basin			
77023		St. Clair	M-21	Detention Basin			
80071	48547	Van Buren	M-51 in Decatur	Infiltration Basin			
80071	48547	Van Buren	M-51 in Decatur	Infiltration Basin			
82022	45686	Wayne	I-94 Beech Daly to Pelham Road	Detention Basin			
83031	48538	Wexford	US-131BR, Cadillac, Mackinaw Trail	Detention Basin			
83033		Wexford	US-131	Bog/Fen Bridge Approach	Infiltration	Minimize salt to bog	
83033	43613	Wexford	US-131 at S04 of 83033	Basin - Infiltration and Retention	Litigation		
FR11112	38605		US-31 (Relocation)	Detention Basin			
	74149		I-69	Rest area reconstruction	parking lot runoff	oil/water separators	
			US-12 and I-69	Detention Basin			MDOT Maintenance

Appendix F

Pollution Prevention/Good Housekeeping

Appendix F.1 Salt and Sand Usage

MDOT Salt and Sand Usage **Winter 2005-2006**

Municipal Salt Oct 2005-April 2006

Region	LANE MILES	TONS/DATE	TONS/LANE MILE
Superior	206.74	4674.25	22.61
North	147.13	5822.00	39.57
Grand	100.24	1523.90	15.20
Bay	296.71	6131.60	20.67
Southwest	299.52	3876.30	12.94
University	387.73	9496.72	24.49
Metro	251.69	4217.40	16.76
TOTAL	**1689.76**	**35742.17**	**21.75**

County and Direct Forces Salt & Sand Oct 2005-April 2006

Region	LANE MILES	SALT/TONS	TONS/LANE MILE	SAND/TONS	TONS/LANE MILE
Superior	4015.9	96389.9	24.0	39871.4	9.9
North	4808.5	119610.9	24.9	35953.5	7.5
Grand	3368.4	85388	25.3	14288.8	4.2
Bay	4356.2	68744.5	15.8	58.0	0.0
Southwest	3743.5	53938.1	14.4	67.9	0.0
University	4301.4	60028.3	14.0	10980.1	2.6
Metro	4778.6	99469	20.8	0.0	0.0
TOTAL	**29372.5**	**583568.7**	**19.9**	**101219.7**	**3.5**

Combined Total (municipal, county, direct) Oct 2005-April 2006

Region	LANE MILES	SALT/TONS	TONS/LANE MILE	SAND/TONS	TONS/LANE MILE
Superior	4222.6	101064.2	23.9	39871.4	9.4
North	4955.6	125432.9	25.3	35953.5	7.3
Grand	3468.6	86911.9	25.1	14288.8	4.1
Bay	4652.9	74876.1	16.1	58.0	0.0
Southwest	4043.0	57814.4	14.3	67.9	0.0
University	4689.1	69525.0	14.8	10980.1	2.3
Metro	5030.3	103686.4	20.6	0.0	0.0
TOTAL	**31062.3**	**619310.9**	**20.0**	**101219.7**	**3.3**

Appendix F.2 Maintenance Activity Costs for MDOT Direct Forces

MDOT PCA Costs and Details FY 2006

Region	Activity		# Hours	Cost	# Units	Cost/unit
Superior	Roadside Maintenance	Catch Basin Cleanout	2,312	$251,974	3,539	$71
	General Maintenance	Approach Sweeping	61	$2,141	45	$48
		Curb Sweeping	1,069	$54,942	Not available	Not available
		Total	3,442	$309,057	-	-
North	Roadside Maintenance	Catch Basin Cleanout	1,477	$123,357	2,447	$50
	General Maintenance	Approach Sweeping	468	$25,350	1,117	$23
		Curb Sweeping	30	$10,239	Not available	Not available
		Total	1,975	$158,946	-	-
Grand	This region does not have any direct forces garages. Maintenance is done by local agencies.					
Bay	Roadside Maintenance	Catch Basin Cleanout	211	$13,700	5	$2,740
	General Maintenance	Approach Sweeping	365	$19,679	610	$32
		Curb Sweeping	1,140	$366,335	320.5 curb miles	$1,143
		Total	1,716	$399,714	-	-
Southwest	Roadside Maintenance	Catch Basin Cleanout	413	$185,418	2,582	$72
	General Maintenance	Approach Sweeping	1,018	$42,458	2,245	$19
		Curb Sweeping	8	$82,491	175 curb miles	$471
		Total	1,439	$310,367	-	-
University	Roadside Maintenance	Catch Basin Cleanout	129	$4,504	234	$19
	General Maintenance	Approach Sweeping	1,580	$62,963	4,559	$14
		Curb Sweeping	0	$51,535	0	-
		Total	1,709	$119,002	-	-
Metro	Roadside Maintenance	Catch Basin Cleanout	38	$95,871	Not available	Not available
	General Maintenance	Approach Sweeping	0	$1,006,008	0	-
		Curb Sweeping	16	$296,584	Not available	Not available
		Total	54	$1,398,463	-	-
Total*	Roadside Maintenance	Catch Basin Cleanout	4,542	$578,953	8,807	$66
	General Maintenance	Approach Sweeping	3,492	$152,591	6,710	$23
		Curb Sweeping	2,273	$565,568	-	-
		Total	10,307	$1,297,112	-	-

* Hourly and unit totals for Catch Basin Cleanout and Approach and Curb Sweeping do not include complete data from the regions. Cost information is assumed to be correct.

Appendix F.3 Maintenance Activity Costs for Contracted Agencies

Local Agency Payment System (LAPS) Report Summary for Maintenance Activities

Region	Activity	Cost	Lane Miles	Cost per Lane Mile	Average Cost per Hour	*Approximate Total Hours* [1]
Superior	Street Sweeping and Flushing	$36,507	3,301	$11.06	$97	*376*
	Culvert/Underdrain Maintenance	$88,779	3,300	$26.90	$81	*1,096*
	Ditch Clean-out	$103,334	3,300	$31.31	$68	*1,520*
	Total	$228,620	9,901	$23.09	$82	*2,992*
North	Street Sweeping and Flushing	$98,727	4,048	$24.39	$76	*1,299*
	Culvert/Underdrain Maintenance	$161,764	4,048	$39.96	$74	*2,186*
	Ditch Clean-out	$14,379	4,050	$3.55	$75	*192*
	Total	$274,870	12,146	$22.63	$75	*3,677*
Grand	Street Sweeping and Flushing	$275,097	3,368	$81.67	$239	*1,151*
	Culvert/Underdrain Maintenance	$36,574	3,368	$10.86	$226	*162*
	Ditch Clean-out	$19,609	3,369	$5.82	$56	*350*
	Total	$331,280	10,105	$32.78	$174	*1,663*
Bay	Street Sweeping and Flushing	$235,587	3,341	$70.51	$123	*1,915*
	Culvert/Underdrain Maintenance	$181,342	3,341	$54.27	$88	*2,061*
	Ditch Clean-out	$2,087	3,366	$0.62	$58	*36*
	Total	$419,016	10,049	$41.70	$90	*4,012*
Southwest	Street Sweeping and Flushing	$53,115	748	$71.05	$100	*531*
	Culvert/Underdrain Maintenance	$77,967	748	$104.29	$382	*204*
	Ditch Clean-out	-	0	-	-	*0*
	Total	$131,082	1,495	$87.67	$241	*735*
University	Street Sweeping and Flushing	$254,501	2,489	$102.24	$433	*588*
	Culvert/Underdrain Maintenance	$72,451	2,489	$29.11	$44	*1,647*
	Ditch Clean-out	$17,904	2,490	$7.19	$70	*256*
	Total	$344,856	7,468	$46.18	$182	*2,490*
Metro	Street Sweeping and Flushing	$2,898,490	4,385	$660.99	$72	*40,257*
	Culvert/Underdrain Maintenance	-	0	-	-	*0*
	Ditch Clean-out	-	0	-	-	*0*
	Total	$2,898,490	4,385	$660.99	$72	*40,257*
Total	Street Sweeping and Flushing	$3,852,024	21,680	$177.68	$163	*46,117*
	Culvert/Underdrain Maintenance	$618,877	17,294	$35.79	$149	*7,355*
	Ditch Clean-out	$157,313	16,576	$9.49	$65	*2,353*
	Total	$4,628,214	55,551	$83.32	$141	*55,826*

[1]Wayne County and many cities do not report labor hours in LAPS. The number of hours listed in italics is based the average "cost per hour" obtained from local agencies which had reported the number of their hours spent on the activity.

Appendix G

Soil Erosion and Sedimentation Control

2006 Construction Reviews
MDOT Stormwater Program

Region	Projects Reviewed	No. of Inspections
Bay	M-84 reconstruction in Bay County	1
	M-84/I-75 Interchange reconstruction in Saginaw County	1
	M-46 from M-24 to M-53 reconstruction in Tuscola County	2
	US-23 reconstruction in Genesee County	1
Grand	M-20 in Newago County	1
	I-96/36th Street near Grand Rapids	3
	I-96 in Walker in Kent County	1
North	M-27 bridge over Mullett Creek	1
	I-75 south of Mackinac Bridge	1
	M-115/M-55 near Cadillac	1
	M-32 in Alpena County	1
Southwest	I-69 near Marshall	1
	M-66/M-79 near Nashville	1
	M-51 at Brandywine Creek near Niles	1
Superior	M-28 in Luce County	1
	M-26 in Houghton County	1
	M-203 in Calumet	1
Metro	M-153 over Fellow Creek - three visits	3
	M-14 Wayne/Washtenaw County Line to Sheldon Road	3
	I-75	3
	US-24 over Silver Creek	3
	I-96 BL in Oakland County	3
	M-1/M-102 in Oakland County	3
	US-24 in Wayne County	3
	M-39 in Detroit	3
	M-29 over Crepeau Drain	3
	I-94 in St. Clair County	3
	M-85 over I-75 south of Detroit	3

MDOT
Michigan Department of Transportation

OFFICE MEMORANDUM

DATE: May 26, 2006

TO: Region Engineers
TSC Managers
Delivery Engineers
Development Engineers
Region Resource Staff

FROM: Judy Ruszkowski
Operations Environmental Stewardship Engineer
Storm Water Program Manager

SUBJECT: Storm Water Management Plan Activity C-7
Soil Erosion and Sedimentation Control (SESC) Program Review Process

As part of the department's Storm Water Management Plan (SWMP), we will implement the SESC Program Review Process, described in the attached document, beginning with the 2006 construction season. MDOT's Environmental Committee approved the review process developed by the Municipal Separate Storm Sewer Systems (MS4) sub-team charged with implementation of SESC related activities contained in the SWMP. This procedure is being submitted to the MDEQ's Storm Water Unit, as all components of the department's SWMP are.

This review process relies on quality control and quality assurance measures currently in place under which the need for SESC is evaluated during project planning, development and delivery phases. The added component is an internal project-level review, with a feedback mechanism to evaluate the effectiveness of existing procedures and identify opportunities for improvement. This program review does not replace project design considerations and field inspections required by our MDEQ-approved SESC procedures; instead it provides an added quality assurance check to make sure those procedures are effective in anticipating, identifying and correcting erosion and sedimentation control problems before waters of the State are impacted.

The SESC program review will be phased in over the remaining life of the five-year statewide Storm Water Discharge Permit, with the frequency and timing of the reviews ultimately tied to the Engineer Certification Program schedule. Tying the SESC program review to the three-year engineer certification schedule creates a built-in trigger within existing MDOT business rules to ensure the SESC reviews are completed. This allows the reviews to be completed in the most efficient manner, as many of the region staff involved in the engineer certification reviews will also be involved in the SESC program reviews. In addition, since the engineer certifications are staggered over the three-year cycle, SESC program review activity will generally occur each construction season in each region, reinforcing the importance of good soil erosion and sedimentation control.

During the 2006-2008 construction seasons, C&T SESC staff will work with the regions to schedule program reviews. Once the process is fully implemented, region staff with SESC oversight responsibility will schedule the reviews using the engineer certification list, which is available on C&T's Web page. The MS4 Team will evaluate the outcome of this review process annually as part of the overall storm water management program review. Modifications will be made, as necessary, to ensure that MDOT construction and maintenance projects are planned and completed with Michigan's natural resources in mind.

Region SESC Coordinators are asked to contact Tom Killingworth (517-322-6450) to schedule reviews. If you have general program review questions, please contact Tom or Dave Gauthier (517-322-5710). I am always available to discuss the requirements of MDOT's Storm Water Management Program. You can reach me at 517-322-5698 or ruszkowskij@michigan.gov.

Attachment

JAR:kar

cc: Environmental Committee
A. Thomas, Tetra Tech
D. Christian, Tetra Tech
MS4 Team

Michigan Department of Transportation
SWMP Activity C-7
SESC Program Review Process

1. Purpose and Scope

Construction Storm Water Runoff Control is one of the five elements included in the MDOT Storm Water Management Plan (SWMP). This plan element is supported in large part by the existing MDOT Soil Erosion and Sedimentation Control (SESC) program. In addition to the continued enforcement of the department's MDEQ-approved SESC program as required to maintain Authorized Public Agency (APA) status, Activity C-7 of the SWMP calls for the development and implementation of an internal program review process. The process outlined herein fulfills this SWMP requirement by detailing the business rules under which appropriate SESC measures are evaluated during the project planning, development and delivery phases (quality control) and by implementing an internal project-level review component (quality assurance). The purpose of the project level review is to ensure compliance with MDOT's approved SESC procedures thereby ensuring that all applicable SESC laws, administrative rules and requirements are being met.

The objective of the program review process is to provide the checks and balances necessary to document the adequacy of the department's SESC program and to identify opportunities for continued improvement through training of new staff or adoption of new methods and technologies. The outcome of this review process will be evaluated annually by the Municipal Separate Storm Sewer System (MS4) team at MDOT as part of the overall storm water management program review. Modifications will be made as necessary to improve compliance with the statewide storm water discharge permit.

2. Project Development QC/QA

2.1 Development Quality Control - During project development, soil erosion and sedimentation control (SESC) measures are incorporated into the contract documents in accordance with the procedures detailed in the Road and/or Bridge Design Manual and the Drainage Manual. The project manager follows the plan review checklists as a guide during the development of road and bridge projects to ensure all necessary components for a given project are included.

SESC measures are considered several times as the project manager uses the check lists to assure the completeness of the project documents. During preliminary plan development, prior to the Plan Review meeting, areas with high erosion potential and sensitive areas such as wetlands, lakes, and streams are identified and appropriate temporary or permanent SESC measures are specified to ensure adequate protection during construction. Depending on the nature of the project area and extent of earth disturbance, the project manager may consult with region soils engineer, Lansing Construction & Technology (C&T) and/or the Michigan Department of Environmental Quality (MDEQ) at this stage of project development for input on specific erosion control measures.

Once selected, these measures are detailed on the plans at the approximate location they will be needed in the field. Pay items and quantities for the erosion control measures are listed on the respective plan sheets. Miscellaneous quantities of typical erosion control pay items are included on the note sheet to be used "as needed" to account for extreme weather conditions and unforeseen changing field conditions during construction.

Under certain circumstances, specialized erosion control measures not included in the SESC manual may be necessary to provide adequate protection to sensitive areas. These

situations often require additional design and detailing efforts on the plans and will be handled on a case by case basis with input from the appropriate design staff.

2.1 Development Quality Assurance - Inclusion of SESC measures is one of many items verified during the Plan Review for a project. The plan review meeting and corresponding field review is conducted by the Quality Assurance and Lettings Unit of the Design Support Area to assure the completeness of the contract documents for a project. Under unusual circumstances, such as an expedited project schedule or when a Quality Assurance Engineer is not available, a Design Engineer-Road or Region System Manager may conduct the plan review. If SESC measures are incomplete or inadequate, corrections are made on the plans to assure sufficient coverage is afforded for implementation during construction.

A post-construction meeting may also be held on projects. At the post-construction meeting, the project is reviewed with discussions focusing on problems encountered during the construction phase, solutions applied and possible methods to avoid similar issues in the future. At this meeting, recurring issues with the inclusion of adequate SESC measures during project development will be discussed with the project Development and Delivery staff, the prime and/or sub-contractor, Lansing C&T SESC staff and the Operations Environmental Stewardship Engineer (OESE) so that program improvements can be implemented.

3. Project Delivery QC/QA

3.1 Delivery Quality Control – Construction - SESC quality control for construction projects is provided through a combination of enforcement of the contract documents and field inspections. SESC quality control on construction projects begin at the preconstruction meeting. Preconstruction meetings are conducted by the delivery engineer, or designated staff, and must cover a range of topics, one of which is erosion and sedimentation control. The format for this meeting typically follows the *Guide for Conducting Preconstruction Meetings* as detailed in Section 102 of the MDOT Construction Manual. The following excerpt, taken from Item 20 of the guide, lists various SESC-related issues that may be discussed during project delivery:

20 Soil Erosion and Sedimentation Control (SESC) and National Pollutant Discharge Elimination System (NPDES).

- Review DEQ permit requirements and discuss impact to sensitive areas.
- Install temporary SESC measures prior to all earth change activities.
- Maintain SESC measures throughout the life of the project until the site is stabilized and accepted.
- Review effectiveness of SESC measures at progress meetings.
- Stabilization/Restoration completed in accordance with subsection 208.03B of the standard specifications.
- Identify SESC inspector(s) and verify valid training certificates.
- Earth Change Plan required for work outside limits of earth disturbance but within ROW.

Once the contract is awarded and construction begins, consideration of SESC measures continues throughout the life of the project. At progress meetings with the contractor, the effectiveness of the in-place SESC measures is reviewed to determine what measures are working well and providing adequate protection and what measures and/or locations need improvement or maintenance.

Until the site is stabilized and accepted, inspections are conducted by certified staff once per week and within 24 hours of a precipitation event that results in discharge from the right-of way. These inspections are documented on MDOT form 1126. If corrective actions are necessary, the contractor is directed to complete them in the time frame consistent with that specified in the SESC manual. A log of these inspections is maintained throughout the construction phase. Upon project completion and acceptance, the inspection reports are placed in the project files and retained for at least three years.

If a post-construction meeting is scheduled, problems encountered during the construction phase, solutions applied and possible methods to avoid similar issues in the future are discussed. At this meeting, recurring issues with the inclusion of adequate SESC measures during project development will be discussed with the project Development and Delivery staff, the prime and/or sub-contractor, Lansing C&T SESC staff and the Operations Environmental Stewardship Engineer (OESE) so that program improvements can be implemented.

3.2 Delivery Quality Control – Maintenance - SESC quality control for maintenance activities is provided through a combination of training and field inspections. Training is provided to department maintenance staff as necessary to ensure compliance with the department's SESC program. Supervisory staff responsible for conducting SESC inspections are required to attend training sponsored by the MDEQ. Non-supervisory staff attends in-house training provided by C&T and/or region staff as necessary. Region resource staff periodically attend regularly scheduled garage meetings to discuss the selection, implementation and maintenance of SESC measures.

During the execution of maintenance activities involving earth disturbances other than ditch clean out operations, department and contract maintenance staff follow the directions for completing an earth change plan that are included in the Maintenance Operations Manual and/or the SESC Manual. These manuals also include an example of an acceptable plan along with specific direction on when the plan is required. Ditch clean out operations do not require preparation of an earth change plan provided they are conducted according to the MDOT-approved work methods that accompany the Maintenance Performance Guide for Activity #12300.

Regular inspections are conducted by certified staff once per week and within 24 hours of a precipitation event that results in discharge from the right-of-way until the site is stabilized. These inspections are documented using MDOT form 1126. If corrective actions are necessary, maintenance staff is directed to complete them in the time frame consistent with that specified in the SESC manual. A log of these inspections is kept throughout the performance of the maintenance activity. The inspection reports are kept on file by designated maintenance staff and retained for at least three years.

3.3 Delivery Quality Assurance Review Frequency - In order to ensure that this program review process continues to receive the appropriate level of attention across the department, a phased approach will be taken that ultimately ties the internal SESC review process to the schedule for the federally required Engineer Certification Program. MDOT delivery engineers are reviewed on a three year cycle to ensure that they are following all construction project administration and documentation requirements as prescribed by the Federal Highway Administration. Tying the SESC program review to the three year engineer certification schedule creates a built-in trigger within the existing business rules at MDOT to ensure that the SESC reviews are completed. This also allows the reviews to be completed in the most efficient manner as many of the individuals involved in the engineer

certification reviews will also be involved in the SESC program reviews. Since the engineer certifications are staggered over the three year cycle, annual SESC program review activity will occur in each region, but not in each TSC.

The first phase of this SESC quality assurance review process will cover the 2006-2008 construction seasons to coincide with the initial 2004-2009 storm water discharge permit cycle. During this time SESC review activities will take place in each of the seven MDOT regions on an annual basis. A minimum of two reviews will be completed in each Transportation Service Center (TSC) during this time. Beginning in 2009 the SESC reviews will be scheduled to take place at the same time the engineer certification reviews are scheduled. The frequency of these reviews will be increased as necessary to ensure compliance.

3.4 Delivery Quality Assurance Review - The projects selected for program evaluation will target those that involve large earth disturbances or that are located adjacent to sensitive areas such as lakes, streams and wetlands. The review will include verification that appropriate enforcement agencies were notified of earth change activities; a review of training records for all Part 91 SESC inspectors assigned to the projects; regular project inspection reports; and earth change plans. Program quality assurance reviews may include a review of field conditions to determine if the measures included in the projects plans were sufficient and are being fully enforced to prevent excessive erosion or off-site sedimentation. If any corrective actions have been identified in the regular project inspection reports, the review team will check whether a time frame for completion consistent with that specified in the SESC Manual was included in the inspection report and whether there was adequate follow up documented to ensure the actions were completed in that time frame.

The results of the SESC Program Review will be documented using the *SESC Program Review Form* and will be filed with the appropriate maintenance staff or placed in the construction project file. At a minimum, copies will be sent to the TSC Manager and the OESE.

4. Delivery Quality Assurance Review Team

The review team for maintenance activities will include TSC maintenance staff, Region staff responsible for SESC compliance, and Lansing C&T SESC staff. TSC maintenance staff can include the Maintenance Superintendent, Maintenance Supervisor, Maintenance Coordinator or Maintenance Engineer. The review team for construction will include the Delivery Engineer, Region staff responsible for SESC compliance, and Lansing C&T SESC staff. The Delivery Engineer may delegate attendance at the review to the Assistant Delivery Engineer or senior technician. It is recommended that other individuals, including the Part 91 SESC inspector, region soils engineer, project development staff, the environmental permit coordinator and the OESE, participate in the review. Construction and maintenance reviews may be conducted together or may be scheduled separately depending on the staffing and preferences of a particular TSC.

SESC Program Field Review
MAINTENANCE

Original: Maintenance Staff; Copy: TSC Manager & Operations Environmental Stewardship Engineer

Route:	Date:
Control Section:	Job Number (if available):
Maintenance Representative:	Review Conducted by: 1. 2. 3.
TSC and/or Garage:	

No.	SESC Review Items	Yes	No	Date Corrected
1.	Inspector training certificates up to date?			
2.	Inspections up to date? (MDOT Form 1126)			
3.	Corrective actions completed in appropriate time frame?			
4.	Sediment leaving ROW or entering waters of the state?			
5.	Construction sediment tracking onto public roadway?			
6.	Specific SESC measures			
	a. Silt fence properly installed? (trenched in, orientated, etc.)			
	b. Sediment traps maintained and functioning?			
	c. Checkdams properly constructed?			
	d. Inlet protection installed and maintained?			
	e. Filter bags used properly?			
	f. Other SESC measures? (list below)			
7.	Earth Change Plan for work outside grading limits within ROW?			
	a. Earth Change Plan in compliance with R 323.1703?			

Comments and/or Corrective Actions:

SESC Program Field Review
CONSTRUCTION

Original: Project file; Copy: TSC Manager & Operations Environmental Stewardship Engineer

Route:	Date:
Control Section:	Job Number:
Delivery Engineer:	Review Conducted by: 1. 2. 3.
Contractor:	

No.	SESC Review Items	Yes	No	Date Corrected
1.	Inspector training certificates up to date?			
2.	Inspections up to date? (MDOT Form 1126)			
3.	Corrective actions completed in appropriate time frame?			
4.	Sediment leaving ROW or entering waters of the state?			
5.	Construction sediment tracking onto public roadway?			
6.	Specific SESC measures			
	a. Silt fence properly installed? (trenched in, orientated, etc.)			
	b. Sediment traps maintained and functioning?			
	c. Checkdams properly constructed?			
	d. Inlet protection installed and maintained?			
	e. Filter bags used properly?			
	f. Other SESC measures? (list below)			
7.	Earth Change Plan for work outside grading limits within ROW?			
	a. Earth Change Plan in compliance with R 323.1703?			

Comments and/or Corrective Actions:

Construction Advisory

CA 2006-15
October 6, 2006

From Brenda O'Brien, Engineer of Construction and Technology

MDOT-Construction and Technology Support Area
P.O. Box 30049
Lansing, Michigan 48909
Phone/517-322-1087
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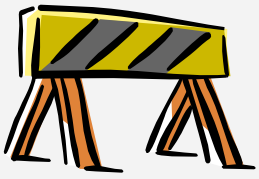
www.michigan.gov/mdot/

Index: Earthwork

Questions regarding this Construction Advisory should be directed to:

Dave Gauthier, Grading and Drainage Engineer, 517-322-5710 or gauthierd@michigan.gov



BJO:DMG

Slope Restoration

Timely slope restoration is critical during the construction phase to establish vegetation as soon as possible, and to minimize soil erosion and subsequent off-site sedimentation. The primary components of slope restoration include topsoil, fertilizer, seed and mulch. Per specification subsection 208.03B, slope restoration is to be completed within 5 calendar days after final grading or within 24 hours after final grading if the earth disturbance is within 150 feet of a lake, stream or wetland. Final grade is not explicitly defined in the standard specifications, but implied to be the time when all grading activities are completed prior to slope restoration. Once final grade is achieved, the contractor should be directed to complete slope restoration in accordance with the standard specifications. The contractor is also subject to a limit of maximum area of bare soil permissible, as detailed in subsection 208.03C. If this area requirement is exceeded, the contractor should be directed to stabilize that area necessary to be in compliance with the limitations outlined in the specifications before disturbing more soil.

Topsoil quality, quantity and placement are important factors to establish adequate vegetation in a timely manner. Quality topsoil should consist of natural loam, sandy loam, silty loam or clay loam humus bearing soil to support plant growth. Topsoil that is too sandy will not retain moisture and will inhibit the germination and establishment of vegetation and should be avoided. The topsoil should be placed at a minimum thickness of three inches and be loose, friable, free of lumps, roots, rocks, litter and foreign matter. Final shaping of topsoil should be evenly graded and free of ruts to enable mulching material to be placed in direct contact with the soil.

Chemical fertilizer nutrient (typically Class A on MDOT projects) utilized for slope restoration is comprised of both water soluble and non-water soluble ingredients, and is intended for placement with one application. The water soluble component of the fertilizer provides a quick boost to generate initial germination, while the non-water soluble component provides a slow release of fertilizer in approximately 4 to 6 weeks. Review fertilizer packages to verify proper ingredients to ensure the fertilizer meets the minimum requirements, as outlined in Section 917 of the standard specifications.

The variety of seed specified for a project should be selected from the Qualified Products List (QPL) and tagged, identifying the supplier and all other pertinent details about the seed type. Seed placement, application rates and seasonal limitations should be in accordance with the standard specifications and verified during construction to ensure the potential for well established vegetation. If permanent seeding is permitted outside of the seasonal limitations, the contractor should be required to certify in writing that if the vegetation fails to establish they will correct all deficiencies at their cost the following spring. If necessary, acceptance of the project may be delayed until adequate vegetation is established and the potential for erosion is eliminated.

Mulch materials should be placed on a given area within 1 day after seeding and fertilizing. If mulch is not placed

within 1 day, the area should be inspected for proper seed coverage and reseeded as necessary. Mulch materials may include straw or hay mulch utilizing tackifier from the QPL, mulch blankets, high velocity mulch blankets, turf reinforcing mats or any other approved technique for stabilizing the exposed ground surface. To ensure effectiveness, install mulch blankets and turf reinforcing mats in accordance with the manufacturer's published guidelines.

Please share this information with consultants and local agencies within your area.